AUTHOR INDEX

— A —

ABELES, F. B. Abscission: the role of ethylene, ethylene analogues, carbon dioxide, and oxygen, 1255
ADAMS, C. A. ATP sulfurylase activity in the soybean [*Glycine max* (L.) Merr.], 2041
ADDICOTT, F. T. See *Robinson*, 1321
ADDICOTT, F. T. See *Davis*, 1389
AHARONI, Y. Respiration of oranges and grapefruits harvested at different stages of development, 99
AKAZAWA, TAKASHI. See *Sugiyama*, 730
AKAZAWA, T. See *Murata*, 1899
AKOYUNOGLOU, G. A. Protochlorophyllide resynthesis in dark-grown bean leaves, 66
ALBERSHEIM, PETER. See *Nevins*, 914
ALLES, W. See *Mederski*, 470
AMIN, J. V. See *Taylor*, 243
ANDREAE, W. A. Does ethylene mediate root growth inhibition by indole-3-acetic acid?, 1375
AOKI, H. See *Ruddat*, 2049
APPELQVIST, L. A. Lipid synthesis and ultrastructure of isolated barley chloroplasts, 163
ARAI, NORIKO. See *Kuraishi*, 238
ARDITTI, JOSEPH. See *Dueker*, 130
ARMSTRONG, DONALD J. See *Matsubara*, 451
ARNESON, P. A. Studies on the mode of action of tomatine as a fungitoxic agent, 683
ARONOFF, S. See *Dear*, 997
ATSMON, DAN. Contents and recovery of gibberellins in monoecious and gynoecious cucumber plants, 806

— B —

BABALOLA, O. Photosynthesis and transpiration of Monterey pine seedlings as a function of soil water suction and soil temperature, 515
BACCARI, V. See *Firenzuoli*, 260, 1125
BAKER, E. A. See *Holloway*, 1878
BAKER, JAMES E. Studies on ultrastructure and purification of isolated plant mitochondria, 2001
BAKHSHI, JAGDISH C. See *Lewis*, 351, 359
BALDRY, C. W. See *Cockburn*, 1415
BALDRY, C. W. See *Walker*, 1419
BANDURSKI, ROBERT S. See *Dever*, 50
BARENDSE, GERARD W. M. Fate of radioactive gibberellin A_1 in maturing and germinating seeds of peas and Japanese morning glory, 815
BARR, RITA. See *Sun*, 1935
BARRS, H. D. See *Klepper*, 1138
BATRA, K. K. See *Flowers*, 1703
BECK, G. E. See *McCown*, 578
BEEVERS, HARRY. See *Breidenbach*, 705
BEEVERS, HARRY. See *Chang*, 1821
BELL, W. D. See *Sander*, 693
BENEDICT, C. R. See *Cooper*, 788
BENEDICT, C. R. Characteristics of a virescent cotton mutant, 1611
BERGMAN, K. See *Shropshire*, 1317
BEWLEY, J. D. See *Negbi*, 35
BEYER, ROBERT E. Oxido-reduction states and natural homologue of ubiquinone (coenzyme Q) in submitochondrial particles from etiolated mung bean (*Phaseolus aureus*) seedlings, 1395
BIALE, JACOB B. See *Baker*, 2001
BIELESKI, R. L. Levels of phosphate esters in *Spirodela*, 1297
BIELESKI, R. L. Effect of phosphorus deficiency on levels of phosphorus compounds in *Spirodela*, 1309
BIKEL, I. See *Mayer*, 1097
BLACK, M. KAY. Effects of storage and aging on properties of phosphofructokinase from Jerusalem artichoke tubers, 2066
BLACK, M. See *Negbi*, 35
BOERSMA, L. See *Babalola*, 515
BOGORAD, LAWRENCE. See *McMahon*, 188
BOGORAD, LAWRENCE. See *Gassman*, 1411
BONNER, WALTER D., JR. See *Lance*, 756
BORTHWICK, H. A. See *Hendricks*, 2023
BOYER, JOHN S. Relationship of water potential to growth of leaves, 1056
BRANDES, H. Studies on cytokinin-controlled bud formation in moss protonemata, 827
BRAVDO, BEN-AMI. Decrease in net photosynthesis caused by respiration, 479
BREIDENBACH, R. W. Characterization of glyoxysomes from castor bean endosperm, 705
BRIGGS, WINSLOW R. See *Cleland*, 157
BRIGGS, WINSLOW R. Some properties of phytochrome isolated from dark-grown oat seedlings (*Avena sativa* L.), 1239
BRIGGS, WINSLOW R. See *Purves*, 1259
BRIX, HOLGER. Influence of light intensity at different temperature on rate of respiration of Douglas-fir seedlings, 389
BRYANT, SARAH R. See *Masingale*, 641
BUKOVAC, M. J. See *Hayashi*, 448
BURG, ELLEN A. See *Burg*, 1069
BURG, STANLEY P. Ethylene formation in pea seedlings: its relation to the inhibition of bud growth caused by indole-3-acetc acid, 1069
BURNS, R. C. See *Hardy*, 1185
BURNS, R. G. The induction of biplanar growth in fern gametophytes in the presence of RNA base analogues, 1987
BUTLER, WARREN L. See *Yamashita*, 1978, 2037

— C —

CAMERON, ERMA C. See *Sanwal*, 417
CAMPBELL, T. G. See *Catsimpoolas*, 799
CARDINI, CARLOS E. See *Lavintman*, 434
CARDINI, CARLOS E. See *Slabnik*, 1063
CASTELFRANCO, PAUL A. See *Tang*, 1232
CATSIMPOOLAS, N. Immunochemical study of changes in reserve proteins of germinating soybean seeds, 799
CHANG, CHI-CHENG. Biogenesis of oxalate in plant tissues, 1821

CHANG, CHONG W. Effect of fluoride on nucleotides and ribonucleic acid in germinating corn seedling roots, 669
CHANG, S. B. A Study of plastoquinones in photochemical reactions in the chloroplasts of *Euglena gracilis* strain Z, 1661
CHENG, CHRISTINA K.-C. Gibberellic acid-promoted lignification and phenylalanine ammonia-lyase activity in a dwarf pea (*Pisum sativum*), 1755
CHERRY, JOE H. See *Gientka-Rychter*, 653
CHERRY, J. H. See *Jarvis*, 1734
CHEUNG, GEOFFREY, P. Comparative studies of enzymes related to serine metabolism in higher plants, 1813
CHRISTIANSEN, M. N. Induction and prevention of chilling injury to radicle tips of imbibing cotton-seed, 743
CHU, HILDA. Fatty acid composition in tobacco I. Green tobacco plants, 428
CLARKSON, DAVID T. Stable concentrations of phytochrome in *Pisum* under continuous illumination with red light, 88
CLELAND, CHARLES F. Effect of low-intensity red and far-red light and high-intensity white light on the flowering response of the long-day plant *Lemna gibba* G3, 157
CLELAND, ROBERT. Distribution and metabolism of protein-bound hydroxyproline in an elongating tissue, the *Avena* coleoptile, 865
CLELAND, ROBERT. Hydroxyproline formation and its relation to auxin-induced cell elongation in the *Avena* coleoptile, 1625
CLEMENTS, HARRY F. Lengthening *versus* shortening dark periods and blossoming in sugarcane as affected by temperature, 57
COCHRAN, DONNA. See *Dickinson*, 411
COCKBURN, W. The isolation of spinach chloroplasts in pyrophosphate media, 1415
COCKBURN, W. See *Walker*, 1419
COLE, C. V. See *Ross*, 1227
CONSTANTOPOULOS, GEORGE. Release of free fatty acids and loss of Hill activity by aging spinach chloroplasts, 531
COOK, G. D. Mutual diffusional interference between adjacent stomata of a leaf, 1611
COOPER, T. G. PEP carboxykinase exchange reaction in photosynthetic bacteria, 788
CORCORAN, MARY RITZEL. Inhibitors from carob (*Ceratonia siliqua* L.) I. Nature of the interaction with gibberellic acid on shoot growth, 859
CRANE, F. L. See *Sun*, 1935
CROZIER, A. See *Ruddat*, 2049
CURTIS, ROY W. Mediation of a plant response to malformin by ethylene, 76

— D —

DATKO, ANNE HARMON. Indoleacetic acid and the synthesis of glucanases and pectic enzymes, 735
DAVIS, BILL D. Is riboflavin the photoreceptor in the induction of two-dimensional growth in fern gametophytes?, 1165
DAVIS, LARRY A. Gas-liquid chromatography of trimethylsilyl derivatives of abscisic acid and other plant hormones, 1389
DAY, P. R. See *Zelitch*, 289, 1838
DE JONG, D. W. Effect of cultivation temperature on peroxidase isozymes of plant cells grown in suspension, 841
DEAR, JOHN M. The non-essentiality of boron for *Scenedesmus*, 997
DEHGAN, NANCY. See *Romani*, 1089
DELA FUENTE, R. K. Lateral movement of auxin in phototropism, 1031
DELBRUCK, M. See *Meissner*, 1279
DELMER, DEBORAH P. Tryptophan biosynthesis in cell cultures of *Nicotiana tabacum*, 81
DESHUSSES, J. See *Roberts*, 979
DEVER, JOHN E., JR. Partial chemical characterization of corn root cell walls, 50
DEVOR, K. A. Acetate binding of spinach chloroplasts as a facet of fatty acid synthesis, 853
DICKINSON, DAVID B. Rapid starch synthesis associated with increased respiration in germinating lily pollen, 1
DICKINSON, DAVID B. Dimethyl sulfoxide: reversible inhibitor of pollen tube growth, 411
DILLEY, D. R. See *Frenkel*, 1146
DOBRENZ, A. K. See *Kleinschmidt*, 665
DOWNTON, W. J. S. Photorespiration and glycolate metabolism: a re-examination and correlation of some previous studies, 923
DRURY, ROBERT E. Properties of succinate oxidation in tomato fruit mitochondria, 248
DRURY, ROBERT E. A hexokinase-initiated inhibition of of oxygen uptake in tomato fruit mitochondria uncoupled by dinitrophenol, 1727
DUEKER, JON. Photosynthetic $^{14}CO_2$ fixation by green *Cymbidium* (Orchidaceae) flowers, 130
DUMAS, T. See *Andreae*, 1375
DUMFORD, S. W. See *Hanson*, 811
DURBIN, R. D. See *Arneson*, 683
DUYSEN, MURRAY E. See *Millar*, 968
DYAR, JAMES J. Certain effects of benzimidazole on young tobacco plants, 477

— E —

EARNSHAW, M. J. Swelling and contraction of *Phaseolus* hypocotyl mitochondria, 121
EDWARDS, D. G. See *Johansen*, 1717, 1722
EHRENREICH, J. H. See *Saunier*, 401
EHRLER, W. L. Leaf diffusion resistance, illuminance, and transpiration, 208
EILRICH, G. L. See *Schrader*, 930
ELFVIN, LARS-G. See *Baker*, 2001
ELZAM, O. E. Characterization of energy-dependent Ca^{2+} transport in maize mitochondria, 1108
ENGLISH, PATRICIA D. See *Nevins*, 914
ESASHI, Y. Physical forces in dormancy and germination of *Xanthium* seeds, 871
ESHHAR, ZELIG. See *Reinhold*, 1023
ETHERTON, B. Vacuolar and cytoplasmic potassium concentrations in pea roots in relation to cell-to-medium electrical potentials, 838
EVANS, HAROLD J. See *Klucas*, 1458, 1906
EVANS, JOHN J. Peroxidases from the extreme dwarf tomato plant. Identification, isolation, and partial purification, 1037
EVERETT, MARYLEE. Second positive phototropism in the *Avena* coleoptile, 1786

— F —

FILNER, BARBARA. Changes in enzymatic activities in etiolated bean seedling leaves after a brief illumination, 1587

FIRENZUOLI, A. M. Changes in enzyme levels during germination of seeds of *Triticum durum*, 260

FIRENZUOLI, A. M. Enzymes of glyoxylate cycle in conifers, 1125

FISHER, L. KARL. See *Romani*, 1089

FISCHER, R. A. Stomatal opening in isolated epidermal strips of *Vicia faba*. I. Response to light and to CO_2-free air, 1947

FISCHER, R. A. Stomatal opening in isolated epidermal strips of *Vicia faba*. II. Responses to KCl concentration and the role of potassium absorption, 1953

FLETCHER, R. A. See *Horton*, 2045

FLOWERS, H. M. Biosynthesis of insoluble glucans from uridine-diphosphate-D-glucose with enzyme preparations from *Phaseolus aureus* and *Lupinus albus*, 1703

FORK, DAVID C. Studies on electron-transport reactions of photosynthesis in plastome mutants of *Oenothera*, 606

FORMAN, M. See *Robinson*, 1321

FOX, L. RAYMOND. Mechanism of enhancement of IAA oxidation by 2,4-dichlorophenol, 454

FOX, L. RAYMOND. Response of tissue with different phytochrome contents to various initial photostationary states, 823

FOX, L. RAYMOND. Differences in photoresponse and phytochrome spectrophotometry between etiolated and de-etiolated pea stem tissue, 1799

FRANKLAND, B. See *Jarvis*, 1734

FRANS, R. E. See *Killion*, 1996

FRENKEL, CHAIM. Protein snythesis in relation to ripening of pome fruits, 1146

FRIEDLANDER, MICHAEL. Stimulation of photoreactions of isolated chloroplasts by serum albumin, 1249

FRYDMAN, ROSALIA B. See *Slabnik*, 1063

FUCHS, YORAM. Effects of kinetin, IAA, and gibberellin on ethylene production, and their interactions in growth of seedlings, 2029

FUKUCHI, SHIKIKO. See *Murata*, 1899

FUNDERBURK, H. H., JR. See *Schultz*, 265

— G —

GAHAGAN, H. E., III. See *Abeles*, 1255

GALLIARD, T. See *Hulme*, 1154

GALSON, EVA C. See *Sondheimer*, 1443

GALSTON, A. W. See *Jaffe*, 537

GALSTON, A. W. See *Lavee*, 1760

GALSTON, A. W. See *Kutacek*, 1793

GANTT, ELISABETH. See *Margulies*, 495

GARRISON, STEPHEN A. See *Drury*, 248

GASSMAN, MERRILL. δ-Aminolevulinic acid transaminase in *Chlorella vulgaris*, 1411

GHOSHEH, NAJATI. See *Kaufman*, 29

GIBBS, MARTIN. See *Russell*, 649

GIBBS, MARTIN. See *Willard*, 793

GIBBS, MARTIN. See *Schulman*, 1805

GIBSON, I. See *Trewavas*, 445

GIENTKA-RYCHTER, ANNA. *De novo* synthesis of isocitritase in peanut (*Arachis hypogaea* L.) cotyledons, 653

GIVAN, CURTIS V. Respiratory response of *Acer pseudoplatanus* cells to pyruvate and 2,4-dinitrophenol, 635

GIVAN, CURTIS V. Short-term changes in hexose phosphates and ATP in intact cells of *Acer pseudoplatanus* L. subjected to anoxia, 948

GLEASON, FRANK H. Respiratory electron transport systems of aquatic fungi I. *Leptomitus lacteus* and *Apodachlya punctata*, 597

GLENN, R. K. See *Leonard*, 1380

GOLDSCHMIDT, E. E. Native growth inhibitors from citrus shoots. Partition, bioassay, and characterization, 113

GOLDSCHMIDT, ELIEZER E. The auxin induced curvature of citrus petals, 1973

GOLDTHWAITE, JONATHAN J. Control of senescence in *Rumex* leaf discs by gibberellic acid, 1855

GORDON, JOHN C. Seasonal course of photosynthesis, respiration, and distribution of ^{14}C in young *Pinus resinosa* trees as related to wood formation, 1617

GORDON, S. A. See *Shen-Miller*, 338

GORHAM, P. R. See *Trip*, 877, 1845

GOTO, YOSHIAKI. See *Sugiyama*, 730

GREEN, PAUL B. Growth physics in *Nitella*: a method for continuous *in vivo* analysis of extensibility based on a micro-manometer technique for turgor pressure, 1169

GREENBERG, ELAINE. See *Sanwal*, 417

GREENE, G. L. See *Proano*, 613

GROOMS, SHIRLEY. See *Killion*, 1996

GRUNWALD, C. Effect of sterols on the permeability of alcohol-treated red beet tissue, 484

— H —

HADDOCK, JAY L. See *Stuart*, 345

HADZIYEV, D. Studies on the ribonucleic acid from wheat leaves and chloroplasts, 229

HAGEMAN, R. H. See *Schrader*, 930

HAGEMAN, R. H. See *Hsiao*, 1941

HAGEN, C. W., JR. See *Miles*, 1347

HALABAN, RUTH. The circadian rhythm of leaf movement of *Coleus blumei* x *C. frederici*, a short day plant. I. Under constant light conditions, 1883

HALABAN, RUTH. The circadian rhythm of leaf movement of *Coleus blumei* x *C. frederici*, a short day plant. II. The effects of light and temperature signals, 1887

HALABAN, RUTH. The flowering response of *Coleus* in relation to photoperiod and the circadian rhythm of leaf movement, 1894

HALL, M. A. See *Ordin*, 473

HALL, T. C. See *McCown*, 578

HAMILTON, R. H. See *Sander*, 693

HAMMEL, H. T. Measurement of turgor pressure and its gradient in the phloem of oak, 1042

HANCOCK, JOSEPH G. Effect of infection by *Hyponyces solani* f. sp. *Cucurbitae* on apparent free space, cell membrane permeability, and respiration of squash hypocotyls, 1666

HANDLEY, RAYMOND. Uptake of carrier-free ^{137}Cs by *Ramalina reticulata*, 1401

HANSON, J. B. Uncoupling of respiration-linked contraction in corn mitochondria, 811

HANSON, J. B. See *Wilson*, 1874

HARDIE, JEANNE. See *Sanwal*, 417

HARDY, P. J. Metabolism of sugars and organic acids in immature grape berries, 224
HARDY, R. W. F. The acetylene-ethylene assay for N_2 fixation: laboratory and field evaluation, 1185
HARPER, JAMES E. See *Paulsen*, 775
HARRIS, G. A. See *Wilson*, 61
HARRIS, WILLIAM M. See *Ku*, 883
HASELKORN, ROBERT. See *Kieras*, 1264
HASSID, W. Z. See *Mayer*, 1097
HASSID, W. Z. See *Flowers*, 1703
HAWKER, K. M. See *De Jong*, 841
HAYASHI, F. Occurrence of gibberellin A_8 in parthenocarpic apple fruit, 448
HEBER, ULRICH W. See *Fork*, 606
HEINZ, D. E. See *Davis*, 1389
HENDRICKS, S. B. Opposing actions of light in seed germination of *Poa pratensis* and *Amaranthus arenicola*, 2023
HENDRIX, JOHN E. Labeling pattern of translocated stachyose in squash, 1631
HENRY, EGBERT W. Invasion of plant tissue by bacteria under *in vitro* conditions, 1730
HESS, W. M. See *Strobel*, 1673
HEW, C. S. Effect of oxygen on the rates of CO_2 evolution in light and in darkness by photosynthesizing and non-photosynthesizing leaves, 464
HIATT, A. J. Flectrostatic association and Donnan phenomena as mechanisms of ion accumulation, 893
HIGINBOTHAM, N. See *Macklon*, 888
HILDRETH, W. W. Laser-activated electron transport in a *Chlamydomonas* mutant, 303
HILLMAN, WILLIAM S. See *Clarkson*, 88
HILLMAN, WILLIAM S. See *Koukkari*, 698
HILLMAN, WILLIAM S. See *Fox*, 823, 1799
HINCHMAN, R. See *Shen-Miller*, 338
HODGES, T. K. See *Elzam*, 1108
HODSON, ROBERT C. Studies of sulfate utilization by algae. 6. Adenosine-3-phosphate-5'-phosphosulfate (PAPS) as an intermediate in thiosulfate formation from sulfate by cell-free extracts of *Chlorella*, 563
HODSON, ROBERT C. Studies of sulfate utilization by algae. 7. *In vivo* metabolism of thiosulfate by *Chlorella*, 570
HOLLOWAY, P. J. Isolation of plant cuticles with zinc chloride-hydrochloric acid solution, 1878
HOLSTEN, R. D. See *Hardy*, 1185
HONDA, S. I. See *Baker*, 2001
HORTON, R. F. Transport of the auxin, picloram, through petioles of bean and *Coleus* and stem sections of pea, 2045
HSIAO, THEODORE C. Effects of potassium nutrition on ribonucleic acid and ribonuclease in *Zea mays* L., 1941
HSIAO, THEODORE C. Ribonuclease activity associated with ribosomes of *Zea mays*, 1355
HSIAO, THEODORE C. See *Fischer*, 1953
HUISMAN, O. C. See *Ryan*, 589
HULL, H. M. See *Saunier*, 401
HULME, A. C. Metabolic changes in excised fruit tissue. IV. Changes occurring in discs of apple peel during the development of the respiration climacteric, 1154
HUNT, L. A. Estimates of the diffusion resistance of some large sunflower leaves in the field, 522
HUTCHIN, MAXINE E. Relation between simultaneous Ca and Sr transport rates in isolated segments of vetch, barley, and pine roots, 1913

— I —

IKUMA, HIROSHI. See *Kaufman*, 29
IKUMA, HIROSHI. See *Beyer*, 1395
IMPENS, IVAN I. See *Hunt*, 522
INGLE, J. Synthesis and stability of chloroplast ribosomal—RNAs, 1448
INGLE, J. The effect of light and inhibitors on chloroplast and cytoplasmic RNA synthesis, 1850
INGLE, J. See *Burns*, 1987
IRVING, R. M. Regulation of cold hardiness in *Acer negundo*, 9
IWAHORI, SHUICHI. Gibberellin-like activity in berries of seeded and seedless Tokay grapes, 333

— J —

JACKSON, E. K. See *Hardy*, 1185
JACOBS, WILLIAM P. See *Kirk*, 675
JACOBSEN, DONALD W. The biogenesis of ethylene in *Penicillium digitatum*, 1959
JAFFE, M. J. Physiological studies on pea tendrils. V. Membrane changes and water movement associated with contact coiling, 537
JANSEN, E. F. See *De Jong*, 841
JARVIS, B. C. Increased DNA template and RNA polymerase associated with the breaking of seed dormancy, 1734
JENNER, C. F. The composition of soluble nucleotides in the developing wheat grain, 41
JENSEN, THOMAS E. See *Henry*, 1730
JENSEN, THOMAS E. Structure of microbodies in abscission cells, 2062
JOHAM, HOWARD E. See *Taylor*, 243
JOHANSEN, C. Interactions between potassium and calcium in their absorption by intact barley plants. I. Effects of potassium on calcium absorption, 1717
JOHANSEN, C. Interaction between potassium and calcium in their absorption by intact barley plants. II. Effects of calcium and potassium concentration on potassium absorption, 1722
JOHNSON, R. E. See *Adams*, 2041
JOLLIFFE, P. A. Effect of temperature, CO_2 concentration, and light intensity on oxygen inhibition of photosynthesis in wheat leaves, 902
JONES, R. L. Ethylene enhanced release of α-amylase from barley aleurone cells, 442
JONES, R. L. Extractable and diffusible gibberellins from light- and dark-grown pea seedlings, 629
JURSIC, F. See *Andreae*, 1375

— K —

KAHANE, I. Effect of substrate salinity on the ability for protein synthesis in pea roots, 1115
KAHN, ALBERT. See *Breidenbach*, 705
KAHN, ALBERT. Developmental physiology of bean leaf plastids II. Negative contrast electron microscopy of tubular membranes in prolamellar bodies, 1769
KAHN, ALBERT. Developmental physiology of bean leaf plastids III. Tube transformation and protochlorophyll(ide) photoconversion by a flash irradiation, 1781
KAUFMAN, PETER B. Promotion of growth and invertase activity by gibberellic acid in developing *Avena* internodes, 29

KAUFMANN, MERRILL R. Water relations of pine seedlings in relation to root and shoot growth, 281
KEMP, JENNIFER. See *Flowers*, 1703
KENDE, HANS. See *Barendse*, 815
KENDE, HANS. See *Brandes*, 827
KENDE, HANS. On the significance of cytokinin incorporation into RNA, 1244
KENYON, CHRISTINE N. See *Constantopoulos*, 531
KEY, JOE L. See *Sobota*, 907
KHAN, A. A. Cytochrome oxidase of cactus, 1461
KHAN, A. A. Inhibition of gibberellic acid-induced germination by abscisic acid and reversal by cytokinins, 1463
KIERAS, FRED J. Properties of ribulose-1,5-diphosphate carboxylase (carboxydismutase) from Chinese cabbage and photosynthetic microorganism, 1264
KILLION, D. D. Oxidative and phosphorylative activities of mitochondria isolated from cotton hypocotyls, 1996
KING, D. L. See *Leonard*, 460
KING, E. E. See *Lane*, 1699
KIRK, SUSAN C. Polar movement of indole-3-acetic acid-^{14}C in roots of *Lens* and *Phaseolus*, 675
KISAKI, TAKURO. See *Mizusaki*, 93
KIVILAAN, A. See *Dever*, 50
KLEIN, ATTILA O. See *Filner*, 1587
KLEIN, ISAAC. See *Frenkel*, 1146
KLEINSCHMIDT, M. G. Gas chromatography of carbohydrates in alfalfa nectar, 665
KLEPPER, BETTY. Effects of salt secretion on psychrometric determinations of water potential of cotton leaves, 1138
KLEPPER, BETTY. Diurnal pattern of water potential in woody plants, 1931
KLUCAS, ROBERT V. An electron donor system for nitrogenase-dependent acetylene reduction by extracts of soybean nodules, 1458
KLUCAS, ROBERT V. Purification and some properties of the nitrogenase from soybean (*Glycine max* Merr.) nodules, 1906
KOCH, BURTON. See *Klucas*, 1906
KOHEL, R. J. See *Benedict*, 1611
KOLATTUKUDY, P. E. Further evidence for an elongation-decarboxylation mechanism in the biosynthesis of paraffins in leaves, 375
KOLATTUKUDY, P. E. Species specificity in the biosynthesis of branched paraffins in leaves, 1423
KOLATTUKUDY, P. E. Tests whether a head to head condensation mechanism occurs in the biosynthesis of *n*-hentriacontane, the paraffin of spinach and pea leaves, 1466
KOLLER, D. See *Samish*, 1129
KOONTZ, H. V. See *Steward*, 583
KOUKKARI, WILLARD L. Pulvini as the photoreceptors in the phytochrome effect on nyctinasty in *Albizzia julibrissin*, 698
KRISHNAN, P. S. See *Khan*, 1461
KROTKOV, G. See *Hew*, 464
KROTKOV, G. See *Ursino*, 845
KRUL, W. R. Increased root initiation in pinto bean hypocotyls with 2,4-dinitrophenol, 439
KU, HAN SAN. Isolation of active mitochondria from tomato fruit, 883
KU, HAN SAN. Active mitochondria do not produce ethylene, 999
KU, LILY L. See *Romani*, 1089
KUIPER, PIETER J. C. Lipids in grape roots in relation to chloride transport, 1367
KUIPER, PIETER J. C. Ion transport characteristics of grape root lipids in relation to chloride transport, 1372
KURAISHI, SUSUMU. Oxidized and reduced nicotinamide adenine dinucleotide phosphate levels of plants hardened and unhardened against chilling injury, 238
KUTACEK, MILAN. The metabolism of ^{14}C-labeled isatin and anthranilate in *Pisum* stem sections, 1793

— L —

LABER, L. J. See *Sander*, 693
LAETSCH, W. M. See *Goldthwaite*, 1855
LANCE, CLAUDE. The respiratory chain components of higher plant mitochondria, 756
LANE, H. C. Stimulation of indoleacetic acid oxidase and inhibition of catalase in cotton extracts by plant acids, 1699
LANG, A. See *Jones*, 629
LANG, ANTON. See *Atsmon*, 806
LANG, ANTON. See *Barendse*, 815
LANG, ANTON. See *Seitz*, 1075
LANPHEAR, F. O. See *Irving*, 9
LANPHEAR, F. O. See *Steponkus*, 151
LARSON, L. A. The effect soaking pea seeds with or without seedcoats has on seedling growth, 255
LARSON, PHILIP R. See *Gordon*, 1617
LATIES, GEORGE G. See *Osmond*, 747
LATIES, GEORGE G. See *Sampson*, 1011
LAVEE, S. Structural, physiological, and biochemical gradients in tobacco pith tissue, 1760
LAVINTMAN, NELLY. Changes in sucrose synthetase activities in aging potato tuber slices, 434
LAVOREL, JEAN. Fluorescence properties of wild-type *Chlamydomonas reinhardi* and three mutant strains having impaired photosynthesis, 1049
LEAVER, C. J. See *Sobota*, 907
LEGGETT, J. E. See *Maas*, 2054
LEE, T. T. Effect of ozone on swelling of tobacco mitochondria, 133
LEMON, E. R. See *Hunt*, 522
LEONARD, O. A. Vein loading and transport in detached leaves, 460
LEONARD, O. A. Translocation of assimilates and phosphate in detached bean leaves, 1380
LEOPOLD, A. C. See *Esashi*, 871
LEOPOLD, A. C. See *dela Fuente*, 1031
LESHEM, Y. Gonadotropin promotion of adventitious root production on cuttings of *Begonia semperflorens* and *Vitis vinifera*, 313
LESTER, ROGER. See *Troxler*, 1737
LEVINE, R. P. See *Lavorel*, 1049
LEVINTHAL, MARK. See *Schiff*, 547
LEVINTHAL, MARK. Studies of sulfate utilization by algae. 5. Identification of thiosulfate as a major acid-volatile product formed by a cell-free sulfate-reducing system from *Chlorella*, 555
LEVINTHAL, MARK. See *Hodson*, 563
LEWIS, JANET E. See *Masingale*, 641
LEWIS, LOWELL N. Interactions of indoleacetic acid and gibberellic acid in leaf abscission control, 351
LEWIS, LOWELL N. Protein synthesis in abscission: The distinctiveness of the abscission zone and its response to gibberellic acid and indoleacetic acid, 359
LIEBERMAN, MORRIS. See *Fuchs*, 2029
LIGHT, ELLIOT N. See *Atsmon*, 806
LOEWUS, F. See *Roberts*, 979, 1710
LONERAGAN, J. F. See *Lowther*, 1362
LONERAGAN, J. F. See *Johansen*, 1717, 1722

LONGO, CLAUDIO P. Evidence for *de novo* synthesis of isocitratase and malate synthetase in germinating peanut cotyledons, 660
LOONEY, NORMAN E. Inhibition of apple ripening by succinic acid, 2,2-dimethyl hydrazide and its reversal by ethylene, 1133
LOTLIKAR, PRABHAKAR D. Intermediate reactions of oxidative phosphorylation in mitochondria from cabbage, 327
LOWTHER, W. L. Calcium and nodulation in subterranean clover (*Trifolium subterraneum* L.), 1362
LUNENFELD, B. See *Leshem*, 313
LYMAN, HARVARD. See *Russell*, 1284
LYON, CHARLES J. Wheat seedling growth in the absence of gravitational force, 1002

— M —

MACDONALD, IAN R. Further evidence of oxygen diffusion as the determining factor in the relation between disk thickness and respiration of potato tissue, 274
MCCLURE, JERRY W. Photocontrol of *Spirodella intermedia* flavonoids, 193
MCCOLLOM, JOHN P. See *Drury*, 248, 1727
MCCOWN, B. H. Plant leaf and stem proteins. I. Extraction and electrophoretic separation of the basic, water-soluble fraction, 578
MCMAHON, DANIEL. Inhibition of the formation of photosynthetic enzymes by inhibitors of photosynthesis, 188
MCMAHON, V. A. See *Kleinschmidt*, 665
MCRAE, D. HAROLD. See *Yih*, 1291
MCWILLIAM, J. R. See *Millerd*, 1967
MAAS, EUGENE V. Manganese absorption by excised barley roots, 527
MAAS, E. V. Uptake of ^{86}Rb and K by excised maize roots, 2054
MABRY, T. J. See *Wohlpart*, 457
MACEY, MICHAEL J. K. Fat metabolism in higher plants XXXVI: Long chain fatty acid synthesis in germinating peas, 1637
MACHLIS, LEONARD. See *Miller*, 714, 723
MACHLIS, LEONARD. The response of wild type male gametes of *Allomyces* to sirenin, 1319
MACKLON, A. E. S. Potassium and nitrate uptake and cell transmembrane electropotential in excised pea epicotyls, 888
MACLACHLAN, G. A. See *Datko*, 735
MANCINELLI, ALBERTO L. See *Yaniv*, 117
MANCINELLI, ALBERTO L. Phytochrome and seed germination. V. Changes of phytochrome content during the germination of cucumber seeds, 489
MANN, JAMES E. Photosynthetic enhancement in the diatom *Phaeodactylum tricornutum*, 1991
MANS, RUSTY J. See *Stout*, 405
MARGULIES, MAURICE M. *In vitro* protein synthesis by plastids of *Phaseolus vulgaris*. II. The probable relation between ribonuclease insensitive amino acid incorporation and the presence of intact chloroplasts, 495
MARGULIES, MAURICE M. *In vitro* protein synthesis by plastids of *Phaseolus vulgaris* III. Formation of lamellar and soluble chloroplast protein, 504
MARSH, H. V., JR. See *Cheng*, 1755
MASINGALE, ROBERT E. Inhibitory effects of dichlorophenoxyacetones on auxin-induced growth of *Avena* coleoptile sections, 641
MASON, BENJAMIN J. See *Maas*, 527
MASTRONUZZI, E. See *Firenzuoli*, 1125
MATSUBARA, SATOSHI. Cytokinins in tRNA of *Corynebacterium fascians*, 451
MAYER, F. C. Pathway of uridine diphosphate *N*-acetyl D-glucosamine biosynthesis in *Phaseolus aureus*, 1097
MEDERSKI, H. J. Beta gauging leaf water status: Influence of changing leaf characteristics, 470
MEHTA, S. L. See *Hadziyev*, 229
MEISSNER, G. Carotenes and retinal in *Phycomyces* mutants, 1279
MEYER, E. W. See *Catsimpoolas*, 799
MILES, C. D. The differentiation of pigmentation in flower parts, IV. Flavonoid elaborating enzymes from petals of *Impatiens balsamina*, 1347
MILLAR, AGUSTIN A. Internal water balance of barley under soil moisture stress, 968
MILLER, DAVID H. Effects of light on the growth and development of the liverwort, *Sphaerocarpos donnellii* Aust., 714
MILLER, DAVID H. Light mediated changes in the chloroplasts of the liverwort, *Sphaerocarpos donnellii* Aust., 723
MILLER, RAYMOND J. See *Hanson*, 811
MILLERD, ADELE. Studies on a maize mutant sensitive to low temperature I. Influence of temperature and light on the production of chloroplast pigments, 1967
MILLS, S. E. See *Delmer*, 81
MIROCHA, C. J. See *Rick*, 201
MIZUSAKI, SHIGENOBU. Phytochemical studies on the tobacco alkaloids. XII. Identification of γ-methylaminobutyraldehyde and its precursor role in nicotine biosynthesis, 93
MOLLENHAUER, H. H. See *Wilson*, 1874
MONSELISE, S. P. See *Goldschmidt*, 113
MOORE, DAVID P. See *Maas*, 527
MORGAN, PAGE W. See *Taylor*, 243
MUDD, J. B. See *Devor*, 853
MUDD, J. B. See *Sumida*, 1162
MURATA, TAKAO. Enzymic mechanism of starch breakdown in germinating rice seeds I. An analytical study, 1899
MURRAY, A. W. See *Nicholls*, 645
MYERS, JACK. See *Mann*, 1991

— N —

NAITO, R. See *Hayashi*, 448
NEGBI, M. Far-red sensitive dark processes essential for light- and gibberellin-induced germination of lettuce seed, 35
NEGI, N. S. See *Schultz*, 265
NELSON, C. D. See *Ursino*, 845
NELSON, O. E. See *Tsai*, 103
NEUMANN, JOSEPH. See *Friedlander*, 1249
NEVINS, DONALD J. Changes in cell wall polysaccharides associated with growth, 914
NICHOLLS, P. B. Adenine phosphoribosyltransferase in plant tissues: some effects of kinetin on enzymic activity, 645
NOBEL, PARK S. Light-induced chloroplast shrinkage *in vivo* detectable after rapid isolation of chloroplasts from *Pisum sativum*, 781
NOODEN, LARRY D. Studies on the role of RNA synthesis in auxin induction of cell enlargement, 140

— O —

OLNEY, H. OMAR. Growth substances from *Veratrum tenuipetalum*, 293
OLSON, A. C. See *De Jong*, 841
ORDIN, L. Cellulose synthesis in higher plants from UDP glucose, 473
OSMOND, C. B. Interpretation of the dual isotherm for ion absorption in beet tissue, 747
OVERSTREET, ROY. See *Handley*, 1401
OZBUN, J. L. See *Sadik*, 1696

— P —

PARENTI, FRANCESCO. See *Margulies*, 495, 504
PAULSEN, GARY M. Evidence for a role of calcium in nitrate assimilation in wheat seedlings, 775
PEREZ, M. DE OLIVEIRA. See *Scholander*, 1870
PERRY, THOMAS O. Dormancy, turion formation, and germination by different clones of *Spirodela polyrrhiza*, 1866
PETERS, GERALD A. See *Beyer*, 1395
PETERSON, D. M. Amino acid incorporation in developing *Fucus* embryos, 941
PHARIS, R. P. See *Ruddat*, 2049
PLATZ, BARBARA B. See *Briggs*, 1239
PLUSCEC, JOSIP. See *Gassman*, 1411
POLJAKOFF-MAYBER, A. See *Kahane*, 1115
POOL, ROBERT M. See *Iwahori*, 333
PRATT, HARLAN K. See *Ku*, 883, 999
PRATT, HARLAN K. See *VonAbrams*, 1271
PREISS, JACK. See *Sanwal*, 417
PRESSEY, RUSSELL. Invertase inhibitors from red beet, sugar beet, and sweet potato roots, 1430
PROANO, V. A. Endogenous gibberellins of a radiation induced single gene dwarf mutant of bean, 613
PURVES, WILLIAM K. See *Fox*, 454
PURVES, WILLIAM K. Kinetically distinguishable populations of phytochrome, 1259

— Q —

QUATRANO, RALPH S. Freeze-preservation of cultured flax cells utilizing dimethyl sulfoxide, 2057

— R —

RAINS, D. W. Kinetics and energetics of light-enhanced potassium absorption by corn leaf tissue, 394
RAMPONI, G. See *Firenzuoli*, 260
RAPPAPORT, LAWRENCE. See *Suge*, 1208
REINHOLD, LEONORA. Transport of 3-*o*-methylglucose into and out of storage cells of *Daucus carota*, 1023
REMMERT, LEMAR F. See *Lotlikar*, 327
RHODES, M. J. C. See *Hulme*, 1154
RICHTER, MARTIN. Determination of root exudates in a steril continuous flow culture. I. The culture method, 1741
RICHTER, MARTIN. Determination of root exudates in a steril continuous flow culture. II. Short-term and long-term variations of exudation intensity, 1747
RICK, P. D. Fixation of carbon dioxide in the dark by the malic enzyme of bean and oat stem rust uredospores, 201
RITENOUR, G. L. See *Schrader*, 930
ROBERTS, KAREN. See *Siegel*, 73
ROBERTS, R. M. Inositol metabolism in plants. V. Conversion of *myo*-inositol to uronic acid and pentose units of acidic polysaccharides in root-tips of *Zea mays*, 979
ROBERTS, R. M. Inositol metabolism in plants. VI. Conversion of *myo*-inositol to phytic acid in *Wolffiella floridana*, 1710
ROBINSON, BETTY J. Auxin transport and conjugation in cotton explants, 1321
ROBINSON, J. MICHAEL. Oxygen evolution and the permeability of the outer envelope of isolated whole chloroplasts, 1597
RODRIGUEZ-TORMES, FELIX. See *Stonier*, 69, 1141
ROMANI, ROGER J. Cellular senescence, radiation damage to mitochondria, and the compensatory response in ripening pear fruits, 1089
ROSADO-ALBERIO, JAIME. Continuity of the chloroplast membrane systems in *Zea mays* L., 1325
ROSENBLUM, I. Y. See *Cheung*, 1813
ROSS, CLEON. Metabolism of cytidine and uridine in bean leaves, 1227
RUDDAT, M. Gibberellin-like substances from vegetative tissue of a conifer, Arizona cypress, 2049
RUSSELL, GEORGE K. Evidence for the participation of reductive pentose phosphate cycle in photoreduction and the oxyhydrogen reaction, 649
RUSSELL, GEORGE K. Isolation of mutants of *Euglena gracilis* with impaired photosynthesis, 1284
RUSSELL, STERLING A. See *Klucas*, 1906
RYAN, C. A. Transitory aspects of a single protein in tissues of *Solanum tuberosum* and its coincidence with the establishment of new growth, 589
RYAN, C. A. Synthesis of chymotrypsin inhibitor I protein in potato leaflets induced by detachment, 1859
RYAN, C. A. An inducible protein in potato and tomato leaflets, 1880
RYRIE, I. J. Metabolic regulation in diseased leaves. II. Changes in nicotinamide nucleotide coenzymes in barley leaves infected with powdery mildew, 687

— S —

SADIK, SIDKI. The association of carbohydrate in the shoot tip of cauliflower with flowering, 1696
SALLACH, H J. See *Cheung*, 1813
SAMADDAR, K. R. Effect of the specific toxin in *Helminthosporium victoriae* on host cell membranes, 21
SAMISH, Y. Photorespiration in green plants during photosynthesis estimated by use of isotopic CO_2, 1129
SAMPSON, MICHAEL J. Ribosomal RNA synthesis in newly sliced discs of potato tuber, 1011
SANDER, CAROL. Light sensitivity of plastids and plastid pigments present in the albescent maize mutant, 693
SANWAL, GHIRDHAR GOPAL. Regulation of starch biosynthesis in plant leaves: activation and inhibition of ADPglucose pyrophosphorylase, 417
SANWAL, G. G. See *Khan*, 1461
SARKISSIAN, IGOR V. On methods of isolation of active, tightly coupled mitochondria of wheat seedlings, 1406
SATTER, RUTH L. Photomorphogenesis in *Sinningia speciosa*, cv. Queen Victoria I. Characterization of phytochrome control, 953

SATTER, RUTH L. Photomorphogenesis in *Sinningia speciosa*, cv. Queen Victoria II. Stem elongation: interaction of a phytochrome controlled process and a red-requiring, energy dependent reaction, 961
SAUNIER, R. E. Aspects of the drought tolerance in creosotebush (*Larrea divaricata*), 401
SCARSELLA, ANTHONY J. See *Hodson*, 563, 570
SCHEFFER, FRITZ. See *Richter*, 1741, 1747
SCHEFFER, R. P. See *Samaddar*, 21
SCHIFF, JEROME A. Studies of sulfate utilization by algae. 4. Properties of a cell-free sulfate-reducing system from *Chlorella*, 547
SCHIFF, JEROME A. See *Levinthal*, 555
SCHIFF, JEROME A. See *Hodson*, 563, 570
SCHOLANDER, P. F. Sap tension in flooded trees and bushes of the Amazon, 1870
SCHOPFER, PETER. Purification of protochlorophyllide holochrome, 990
SCHRADER, L. E. Some characteristics of nitrate reductase from higher plants, 930
SCHULMAN, MARVIN D. D-Glyceraldehyde 3-phosphate dehydrogenases of higher plants, 1805
SCHULTZ, DONALD P. Effect of trifluralin on growth, morphology, and nucleic acid synthesis, 265
SCHWIMMER, SIGMUND. Inhibition of *in vitro* DNA synthesis by auxins, 1008
SCOTT, K. J. See *Ryrie*, 687
SEITZ, KONRAD. Invertase activity and cell growth in lentil epicotyls, 1075
SELL, H. M. See *Hayashi*, 448
SGARBIERI, VALDEMIRO C. See *Williams*, 1083
SHANNON, JACK C. Carbon-14 distribution in carbohydrates of immature *Zea mays*. Kernels following $^{14}CO_2$ treatment of intact plants, 1215
SHEN-MILLER, J. Thresholds for georesponse to acceleration in gravity-compensated *Avena* seedlings, 338
SHIMABUKURO, R. H. Atrazine metabolism in resistant corn and sorghum, 1925
SHIROYA, MICHI. Comparison of upward and downward translocation of ^{14}C from a single leaf of sunflower, 1605
SHRIFT, ALEX. See *Ulrich*, 14
SHROPSHIRE, W., JR. Light induced concentration changes of ATP from *Phycomyces* sporangiophores: a re-examination, 1317
SIEGEL, S. M. Microbiology of saturated salt solutions and other harsh environments IV. New observations on ribonucleotide-induced recovery of KCl-habituated *Penicillium notatum*, 73
SIEGELMAN, H. W. See *Akoyunoglou*, 66
SIEGELMAN, H. W. See *Schopfer*, 990
SKINNER, CHARLES G. See *Masingale*, 641
SKOK, JOHN. Morphogenic responses of debudded tobacco plants to gibberellic acid and indole-3-acetic acid, 215
SKOK, JOHN. Relationship of boron to gibberellic acid-induced proliferation in debudded tobacco plants, 384
SKOOG, FOLKE. See *Matsubara*, 451
SLABNIK, ESTANISLAVA. Some properties of potato tuber UDPG:D-fructose-2-glucosyltransferase (E.C. 2.4.1.14) and UDPG:D-fructose-6-phosphate-2-glucosyltransferase (E.C. 2.4.1.13), 1063
SOBOTA, A. E. A detailed evaluation of the possible contribution of bacteria to radioactive precursor incorporation into nucleic acids of plant tissues, 907
SONDHEIMER, E. See *Walton*, 467
SONDHEIMER, E. Abscisic levels and seed dormancy 1443
SPENCER, PATRICIA. See *Titus*, 619
SPLITTSTOESSER, WALTER E. See *Titus*, 619
SPURR, ARTHUR R. See *Ku*, 883
SRIVASTAVA, HARI K. See *Sarkissian*, 1406
STAFFORD, HELEN A. Relationships between the development of adventitious roots and the biosynthesis of anthocyanins in first internodes of *Sorghum*, 31
STAHMANN, M. A. See *Woodbury*, 437
STEPONKUS, PETER L. The role of light in cold acclimation of *Hedera helix* L. var. Thorndale, 151
STEWARD, K. K. Transport of rubidium absorbed by the apex of the bean root, 583
STILL, G. G. Metabolic fate of 3,4-dichloropropionanilide in plants: the metabolism of the propionic acid moiety, 543
STOCKING, C. R. See *Rosado-Alberio*, 1325
STOCKING, C. R. See *Robinson*, 1597
STONIER, TOM. Studies on auxin protectors. IV. The effect of manganese on auxin protector-I of the Japanese morning glory, 69
STONIER, TOM. Studies on auxin protectors, V. On the mechanism of IAA protection by Protector-I of the Japanese morning glory, 1141
STOUT, ERNEST R. Template requirement of maize RNA polymerase, 405
STROBEL, GARY A. Biological activity of a phytotoxic glycopeptide produced by *Corynebacterium sepedonicum*, 1673
STUART, DARREL M. Inhibition of water uptake in sugar beet roots by ammonia, 345
STUMPF, P. K. See *Appelqvist*, 163
STUMPF, P. K. See *Macey*, 1637
SUGE, HIROSHI. Role of gibberellins in stem elongation and flowering in radish, 1208
SUGIYAMA, TATSUO. Pyruvate kinase activity of wheat plants grown under potassium deficient conditions, 730
SUMIDA, S. Biosynthesis of cytidine diphosphate diglyceride by cauliflower mitochondria, 1162
SUN, ELENA. Comparative studies on plastoquinones. IV. Plastoquinones in algae, 1935
SYPHERD, PAUL S. See *Vold*, 1221

— T —

TAMAKI, EINOSUKE. See *Mizusaki*, 93
TANADA, T. Substances essential for a red, far-red light reversible attachment of mung bean root tips to glass, 2070
TANG, WEN-JING. Phospholipid synthesis in aging potato tuber tissue, 1232
TAVARES, JAMES E. See *Kende*, 1244
TAYLOR, A. O. *In vitro* phytochrome dark reversion process, 767
TAYLOR, D. M. Influence of substrate and tissue manganese on the IAA-oxidase system in cotton, 243
TAZAKI, TADAYOSHI. See *Kuraishi*, 238
TEWARI, C. P. See *Khan*, 1461
THIMANN, KENNETH V. See *Everett*, 1786
TING, IRWIN P. CO_2 metabolism in corn roots. III. Inhibition of P-enolpyruvate carboxylase by L-malate, 1919
TITUS, JOHN S. Metabolism of α-ketoglutarate by roots of woody plants, 619
TOLKOWSKY, ABBY. See *Mancinelli*, 489
TOOLE, V. K. See *Hendricks*, 2023
TORREY, JOHN G. See *Givan*, 635
TORREY, JOHN G. See *Peterson*, 941

TREGUNNA, E. B. See *Jolliffe*, 902
TREGUNNA, E. B. See *Downton*, 923
TREWAVAS, A. J. Ribosomal RNA nucleotide sequence homologies in plants, 445
TRIP, P. Bidirectional translocation of sugars in sieve tubes of squash plants, 877
TRIP, P. Translocation of sugar and tritiated water in squash plants, 1845
TROXLER, ROBERT F. Formation, chromophore composition, and labeling specificity of *Cyanidium caldarium* phycocyanin, 1737
TRUELOVE, B. See *Earnshaw*, 121
TSAI, C. Y. Phosphorylase I and II of maize endosperm, 103
TSO, T. C. See *Chu*, 428
TURNER, NEIL C. Effects of changing stomatal width in a red pine forest on soil water content, leaf water potential, bole diameter, and growth, 973
TYNER, E. H. See *Hsiao*, 1941
TZOU, D. S. See *Sondheimer*, 1443

— U —

ULRICH, JANE M. Selenium absorption by excised *Astragalus* roots, 14
URSINO, D. J. Seasonal changes in the distribution of photo-assimilated ^{14}C in young pine plants, 845
USHIJIMA, TADAHIRO. See *Kuraishi*, 238

— V —

VALDOVINOS, JACK G. See *Henry*, 1730
VALDOVINOS, JACK G. See *Jensen*, 2062
VAN BAALEN, CHASE. The effects of ultraviolet irradiation on a coccoid blue-green alga: Survival, photosynthesis, and photoreactivation, 1689
VAN BAVEL, C. H. M. See *Ehrler*, 208
VAN DENBURGH, R. W. See *Ryan*, 589
VANNI, P. See *Firenzuoli*, 260, 1125
VAUGHAN, BURTON E. See *Hutchin*, 1913
VEDVICK, T. S. See *Chang*, 1661
VENIS, M. A. See *Andreae*, 1375
VISKANTA, R. See *Cook*, 1017
VOLD, BARBARA S. Changes in soluble RNA and ribonuclease activity during germination of wheat, 1221
VON WETTSTEIN, D. See *Appelqvist*, 163
VONABRAMS, G. J. Effect of the kinetin-naphthaleneacetic acid interaction upon total RNA and protein in senescing detached leaves, 1271

— W —

WAGGONER, PAUL E. See *Turner*, 973
WALKER, D. A. See *Cockburn*, 1415
WALKER, D. A. Photosynthesis by isolated chloroplasts, simultaneous measurement of carbon assimilation and oxygen evolution, 1419
WALTON, D. C. Effects of abscisin II on phenylalanine ammonia-lyase activity in excised bean axes, 467
WALTON, DANIEL C. L-Phenylalanine ammonia-lyase activity during germination of *Phaseolus vulgaris*, 1120
WANG, CHIH H. See *Jacobsen*, 1959
WEAVER, ROBERT J. See *Iwahori*, 333
WEDDING, RANDOLPH T. See *Black*, 2066
WEIER, T. ELLIOTT. See *Rosado-Alberio*, 1325
WEIMBERG, RALPH. An electrophoretic analysis of the isozymes of malate dehydrogenase in several different plants, 622
WEST, CHARLES A. See *Corcoran*, 859
WETHERELL, DONALD F. See *Satter*, 953, 961
WHITAKER, JOHN R. See *Williams*, 1083
WHYTE, PAMELA. See *Wilkins*, 1435
WILKINS, MALCOLM B. Relationship between metabolism and the lateral transport of IAA in corn coleoptiles, 1435
WILKINSON, GUY E. See *Millar*, 968
WILLARD, JAMES M. Role of aldolase in photosynthesis. II. Demonstration of aldolase types in photosynthetic organisms, 793
WILLIAMS, DONALD C. Proteolytic activity in the genus *Ficus*, 1083
WILMS, WERNER. See *Richter*, 1741, 1747
WILSON, A. M. Phosphorylation in crested wheatgrass seeds at low water potentials, 61
WILSON, CURTIS M. Plant nucleases. I. Separation and purification of two ribonucleases and one nuclease from corn, 1332
WILSON, CURTIS M. Plant nucleases. II. Properties of corn ribonucleases I and II and corn nuclease I, 1339
WILSON, HAROLD F. See *Yih*, 1291
WILSON, R. H. Ribosome particles in corn mitochondria, 1874
WITHAM, FRANCIS H. Effect of 2,4-dichlorophenoxyacetic acid on the cytokinin requirement of soybean cotyledon and tobacco stem pith callus tissues, 1455
WOHLPART, A. On the light requirement for betalain biogenesis, 457
WOODBURY, W. A press for anaerobic disintegration of small amounts of tissue, 437
WOOLTORTON, L. S. C. See *Hulme*, 1154
WORLEY, J. F. Rotational streaming in fiber cells and its role in translocation, 1648

— Y —

YAMASHITA, TAKASHI. Photoreduction and photophosphorylation with tris-washed chloroplasts, 1978
YAMASHITA, TAKASHI. Inhibition of chloroplasts by UV-irradiation and heat-treatment, 2037
YANIV, ZOHARA. Phytochrome and seed germination. IV. Action of light sources with different spectral energy distribution on the germination of tomato seeds, 117
YIH, ROY Y. Mechanism of selective action of 3',4'-dichloropropionanilide, 1291
YONEDA, YOSHIAKI. See *Stonier*, 69, 1141
YOUNGBERG, C. T. See *Babalola*, 515
YU, IDA K. See *Romani*, 1089

— Z —

ZALIK, SAUL. See *Hadziyev*, 229
ZANOBINI, A. See *Firenzuoli*, 1125
ZELITCH, ISRAEL. Glycolate oxidase activity in algae, 289
ZELITCH, ISRAEL. Investigations on photorespiration with a sensitive ^{14}C-assay, 1829
ZELITCH, ISRAEL. Variation in photorespiration. The effect of genetic differences in photorespiration on net photosynthesis in tobacco, 1838
ZIMMERMAN, DON C. Effect of N-tris (hydroxymethyl) methylglycine and N-2-hydroxyethylpiperazine-N'-2-ethanesulfonic acid buffers on linolenic acid as a substrate for flaxseed lipoxidase, 1656
ZOLLINGER, WENDELL D. See *Briggs*, 1239
ZUCKER, MILTON. Sequential induction of phenylalanine ammonia-lyase and a lyase-inactivating system in potato tuber disks, 365

SUBJECT INDEX

— A —

Abscisic acid,
and seed dormancy, *Sondheimer, Tzou, and Galson,* 1443
-cytokinins antagonism in seed germination, *Khan,* 1463
Abscisin II,
on phenylalanine ammonia-lyase activity in excised bean axes, *Walton and Sondheimer,* 467
Abscission,
anatomical aspects of, *Webster,* 1512
cell wall dissolution and enzyme secretion during, *Morre,* 1545
environmental factors in physiology of, *Addicott,* 1471
ethylene and senescence, *Burg,* 1503
hormonal regulation of, *Jacobs,* 1480
in crops; its control by various agents, *Cooper, Rasmussen, Rogers, Reece, and Henry,* 1560
role of ethylene, ethylene analogues, CO_2 and O_2, *Abeles and Gahagan,* 1255
role of RNA and protein synthesis in, *Abeles,* 1577
senescence processes in, *dela Fuente and Leopold,* 1496
Abscission cells,
structure of microbodies in, *Jensen and Valdovinos,* 2062
Absorption,
light-enhanced potassium, in corn leaf tissue, *Rains,* 394
Acer negundo,
regulation of cold hardiness in, *Irving and Lanphear,* 9
Acer pseudoplatanus,
respiratory response to pyruvate and 2,4-DNP by cells of, *Givan and Torrey,* 635
Acer pseudoplatanus cells,
changes in hexose phosphates and ATP in, *Givan,* 948
Acetate,
binding of chloroplasts as a facet of fatty acid synthesis, *Devor and Mudd,* 853
Acetylene-ethylene assay,
for N_2 fixation, *Hardy, Holsten, Jackson, and Burns,* 1185
Acetylene reduction,
nitrogenase-dependent; an electron donor system for, *Klucas and Evans,* 1458
Adenine phosphoribosyltransferase: *see* Enzymes
Adenosine-3′-phosphate-5′-phosphosulfate (PAPS),
an intermediate in thiosulfate formation from sulfate by *Chlorella* extract, *Hodson, Schiff, Scarsella, and Levinthal,* 563
ADP glucose pyrophosphorylase: *see* Enzymes
Agmenellum quadruplicatum,
effects of UV irradiation, *Van Baalen,* 1689
Agropyren desertorum: *see* Crested wheatgrass
Albizzia julibrissin,
pulvini as phytochrome photoreceptors in nyctinasty, *Koukkari and Hillman,* 698
Aldolase: *see* Enzymes
Alfalfa,
variations in root exudation, *Richter, Wilms, and Scheffer,* 1747
Alfalfa nectar,
gas chromatography of carbohydrates from, *Kleinschmidt, Dobrenz, and McMahon,* 665
Algae,
plastoquinones in, *Sun, Barr, and Crane,* 1935
Allomyces species,
response of male gametes to sirenin, *Machlis,* 1319
Amaranthus arenicola,
opposing actions of light in seed germination, *Hendricks, Toole, and Borthwick,* 2023
Amino acid,
incorporation in developing *Fucus* embryos, *Peterson and Torrey,* 941
δ-Aminolevulinic acid transaminase: *see* Enzymes
Ammonia,
inhibition by, of water uptake in sugar beet roots, *Stuart and Haddock,* 345
α-Amylase: *see* Enzymes
Anaerobic disintegration,
a press for, of tissue, *Woodbury and Stahmann,* 437
Anatomy,
of abscission, *Webster,* 1512
Anoxia,
changes in hexose phosphates and ATP in *Acer pseudoplatanus* cells in, *Givan,* 948
Anthocyanin biosynthesis,
and root production in first internodes of sorghum, *Stafford,* 318
Anthranilate,
metabolism in pea stem sections, *Kutacek and Galston,* 1793
Apodachlya punctata,
respiratory electron transport system in, *Gleason,* 597
Apparent free space,
of squash hypocotyls: effect of infection by *Hypomyces solani, Hancock,* 1666
Apple,
changes occurring in peel discs during development of respiration climacteric, *Hulme, Rhodes, Galliard, and Wooltorton,* 1154
inhibition of ripening in, by succinic acid 2,2-dimethyl hydrazide and its reversal by ethylene, *Looney,* 1133
occurrence of gibberellin A_3 in parthenocarpic fruit, *Hayashi, Naito, Bukovac, and Sell,* 448
Arachis hypogaea: *see* Peanut
Arizona cypress: *see Cupressus arizonica*
Astragalus Crotalariae,
selenium absorption by excised roots of, *Ulrich and Shrift,* 14
Astragalus lentiginosus,
selenium absorption by excised roots of, *Ulrich and Shrift,* 14
ATP,
changes in, in *Acer pseudoplatanus* cells in anoxia, *Givan,* 948

light-induced concentration changes in *Phycomyces* sporangiophores: a re-examination, *Shropshire and Bergman*, 1317
ATP sulfurylase: *see* Enzymes
Atrazine,
metabolism in resistant corn and sorghum, *Shimabukuro*, 1925
Auxin(s),
induction of cell enlargement, role of RNA synthesis, *Nooden*, 140
-induced curvature of citrus petals, *Goldschmidt*, 1973
inhibition of *in vitro* DNA synthesis by, *Schwimmer*, 1008
lateral movement of, in phototropism, *de la Fuente and Leopold*, 1031
transport of picloram through petioles and stems, *Horton and Fletcher*, 2045
Auxin conjugation,
in cotton explants, *Robinson, Forman, and Addicott*, 1321
Auxin protector-I,
effect of manganese on, of Japanese morning glory, *Stonier, Rodriguez-Tormes, and Yoneda*, 69
Auxin protectors,
mechanism of protection by Protector-I of Japanese morning glory, *Stonier, Yoneda, and Rodriguez-Tormes*, 1141
Auxin transport,
in cotton explants, *Robinson, Forman, and Addicott*, 1321
Auxin-induced cell elongation,
and hydroxyproline formation, *Cleland*, 1625
Avena coleoptile,
distribution and metabolism of protein-bound hydroxyproline in, *Cleland*, 865
effects of dichlorophenoxyacetones on auxin-induced growth of, *Masingale, Lewis, Bryant, and Skinner*, 641
hydroxyproline and auxin-induced cell elongation in, *Cleland*, 1625
second positive phototropism in, *Everett and Thimann*, 1786
Avena sativa: *see also* Oat
promotion of growth and invertase activity by gibberellic acid in internodes, *Kaufman, Ghosheh, and Ikuma*, 29
thresholds for georesponse to acceleration in gravity-compensated seedlings of, *Shen-Miller, Hinchman, and Gordon*, 338

— B —

Bacteria,
contribution to precursor incorporation into nucleic acids of soybean tissues, *Sobota, Leaver, and Key*, 907
invasion of plant tissue under *in vitro* conditions, *Henry, Valdovinos, and Jensen*, 1730
Barley,
changes in nicotinamide nucleotide coenzyme in leaves infected with powdery mildew, *Ryric and Scott*, 687
electrostatic association and Donnan phenomena as mechanisms of ion uptake in roots of, *Hiatt*, 893
interactions between potassium and calcium in their absorption, *Johansen, Edwards, and Loneragan*, 1717, 1722
lipid synthesis and ultrastructure of chloroplasts of, *Appelqvist, Stumpf, and von Wettstein*, 163
manganese absorption by excised roots, *Maas, Moore, and Mason*, 527
water balance and moisture stress in, *Millar, Duysen, and Wilkinson*, 968
Barley aleurone,
ethylene-enhanced release of α-amylase from, *Jones*, 442
Bean,
cell wall dissolution and enzyme secretion during leaf abscission, *Morre*, 1545
changes in enzymatic activities in etiolated leaves after brief illumination, *Filner and Klein*, 1587
developmental physiology of plastids, *Kuhn*, 1769, 1781
effects of abscisin II on phenylalanine ammonia-lyase activity in excised axes, *Walton and Sondheimer*, 467
gibberellins of radiation induced single gene dwarf mutant, *Proano and Greene*, 613
increased root initiation with 2,4-DNP in hypocotyls, *Krul*, 439
metabolism of cytidine and uridine in leaves, *Ross and Cole*, 1227
protochlorophyllide resynthesis in dark-grown leaves, *Akoyunoglou and Siegelman*, 66
purification of protochlorophyllide holochrome from leaves, *Schopfer and Siegelman*, 990
senescence processes in abscission, *dela Fuente and Leopold*, 1496
translocation of ^{14}C-assimilates and phosphate in detached leaves of, *Leonard and Glenn*, 1380
transport of picloram through petioles, *Horton and Fletcher*, 2045
transport of rubidium, *Steward and Koontz*, 583
vein loading and transport and detached leaves, *Leonard and King*, 460
Beet,
interpretation of dual isotherm for ion absorption in, *Osmond and Laties*, 747
Begonia semperflorens,
gonadotropin promotion of rooting on cuttings of, *Leshem and Lunenfeld*, 313
Benzimidazole,
effect on growth and potassium content of tobacco, *Dyar*, 477
Beta-gauging leaf water status,
influence of changing leaf characteristics, *Mederski and Alles*, 470
Beta vulgaris: *see* Sugar beet *and* Red beet
Betalain biogenesis,
light requirement for, *Wohlpart and Mabry*, 457
Biplanar growth,
in fern gametophytes in presence of RNA base analogues, *Burns and Ingle*, 1987
Bole diameter,
effect of changing stomatal width on, in a pine forest, *Turner and Waggoner*, 973
Boron,
not essential for growth of *Scenedesmus obliquus*, *Dear and Aronoff*, 997
relationship to gibberellic acid-induced proliferation in debudded tobacco plants, *Skok*, 384

Box elder: *see Acer negundo*
Brassica cauliflora: *see* Cauliflower
Brassica oleracea: *see also* Broccoli
specificity in biosynthesis of branched paraffins, *Kolattukudy*, 1423
Brassica oleracea var. *capitata*: *see* Cabbage
Brassica petsai: *see* Chinese cabbage
Broccoli: *see also Brassica oleracea*
hormone interaction on RNA and protein in senescing leaves of, *VonAbrams and Pratt*, 1271
Bud formation,
cytokinin-controlled, in *Funaria hygrometrica* protonemata, *Brandes and Kende*, 827
Bud growth,
ethylene and indole-3-acetic acid relationships in, *Burg and Burg*, 1069

— C —

Cabbage,
intermediate reactions of oxidative phosphorylation in mitochondria from, *Lotlikar and Remmert*, 327
Calcium,
and nodulation in *Trifolium subterraneum*, *Lowther and Loneragan*, 1362
role of, in nitrate assimilation in wheat seedlings, *Paulsen and Harper*, 775
Calcium absorption,
effects of potassium, *Johansen, Edwards, and Loneragan*, 1717
Calcium transport, energy-dependent,
in maize mitochondria, *Elzam and Hodges*, 1108
California Spanish Moss: *see Ramalina reticulata*
Carbohydrate(s),
changes in cauliflower shoot tip associated with flowering, *Sadik and Ozbun*, 1696
gas chromatography of, from alfalfa nectar, *Kleinschmidt, Dobrenz, and McMahon*, 665
labeling in corn kernels after $^{14}CO_2$ treatment, *Shannon*, 1215
Carbon assimilation,
by isolated chloroplasts, *Walker, Baldry, and Cockburn*, 1419
Carbon-14,
labeling of carbohydrates in corn kernels after $^{14}CO_2$ treatment, *Shannon*, 1215
seasonal changes in distribution of photo-assimilated, in pine, *Ursino, Nelson, and Krotkov*, 845
Carbon-14-assimilates,
translocation of, in detached bean leaves, *Leonard and Glenn*, 1380
Carbon-14 distribution,
seasonal course of, in young *Pinus resinosa* trees, *Gordon and Larson*, 1617
Carbon-14 sugars,
translocation in squash plants, *Trip and Gorham*, 1845
Carob: *see Ceratonia siliqua*
Carotenes,
in *Phycomyces blakesleeanus* mutants, *Meissner and Delbruck*, 1279
Ca transport,
and Sr transport in root segments, *Hutchin and Vaughan*, 1913
photoreduction and photophosphorylation with tris-washed, *Yamashita and Butler*, 1978
Castor bean endosperm,
characterization of glyoxysomes from, *Breidenbac Kahn, and Beevers*, 705
Cauliflower,
association of carbohydrate changes in shoot ti with flowering, *Sadik and Ozbun*, 1696
biosynthesis of cytidine diphosphate diglyceride l mitochondria, *Sumida and Mudd*, 1162
Cell elongation, auxin-induced,
and hydroxyproline formation, *Cleland*, 1625
Cell enlargement,
RNA synthesis in auxin induction of, *Nooden*, 14
Cell extensibility,
method for continuous analysis of, *Green*, 1169
Cell growth,
and invertase activity in lentil epicotyls, *Seitz and Lang*, 1075
Cell membranes,
effect of *Helminthosporium victoriae* toxin on host, *Samaddar and Scheffer*, 21
Cell membrane permeability,
of squash hypocotyls: effect of *Hypomyces solani* infection, *Hancock*, 1666
Cell wall(s),
chemical characterization of corn root, *Dever, Bandurski, and Kivilaan*, 50
of maize root tips, conversion of *myo*-inositol to polysaccharides, *Roberts, Deshusses, and Loewus*, 979
Cell wall dissolution,
and enzyme secretion during abscission, *Morre*, 1545
Cell wall polysaccharides,
changes in associated, with growth of seedlings, *Nevins, English, and Albersheim*, 914
Cellulose synthesis,
in oat from UDP glucose, *Ordin and Hall*, 473
Ceratonia siliqua,
inhibitors from, :interaction with gibberellic acid, *Corcoran and West*, 859
Chilling injury,
induction and prevention in imbibing cottonseed, *Christiansen*, 743
NADP and NADPH levels in pea hardened against, *Kuraishi, Arai, Ushijima, and Tazaki*, 238
Chinese cabbage,
properties of ribulose-1,5-diphosphate carboxylase from, *Kieras and Haselkorn*, 1264
Chlamydomonas reinhardi,
fluorescence of mutants of, *Lavorel and Levine*, 1049
glycolate oxidase in, *Zelitch and Day*, 289
Chlamydomonas reinhardii mutant,
laser-activated electron transport, *Hildreth*, 303
Chlorella pyrenoidosa,
adenosine-3′-phosphate-5′-phosphosulfate an intermediate in thiosulfate formation from sulfate, *Hodson, Schiff, Scarsella, and Levinthal*, 563
glycolate oxidase in, *Zelitch and Day*, 289
in vivo metabolism of thiosulfate, *Hodson, Schiff, and Scarsella*, 570
properties of cell-free sulphate-reducing system, *Schiff and Levinthal*, 547
thiosulphate as a major product of sulphate-reducing system, *Levinthal and Schiff*, 555
Chlorella vulgaris,
δ-aminolevulinic transaminase in, *Gassman, Pluscec, and Bogorad*, 1411

Chloride transport,
ion transport characteristics of lipids in relation to, *Kuiper*, 1372
lipids in grape roots in relation to, *Kuiper*, 1367
Chloroplasts,
acetate binding of, as a facet of fatty acid synthesis, *Devor and Mudd*, 853
in vitro protein synthesis by, *Margulies, Gantt, and Parenti*, 495, 504
isolation in a pyrophosphate media, *Cockburn, Walker, and Baldry*, 1415
light changes in, in *Sphaerocarpos donnellii*, *Miller and Machlis*, 723
lipid synthesis and ultrastructure of, *Appelqvist, Stumpf, and von Wettstein*, 163
oxygen evolution and permeability of outer envelope of, *Robinson and Stocking*, 1597
photoreduction and photophosphorylation with tris-washed, *Yamashita and Butler*, 1978
release of fatty acids and loss of Hill activity by aging, *Constantopoulos and Kenyon*, 531
ribosomal-RNAs; synthesis and stability, *Ingle*, 1448
RNA from, of wheat, *Hadziyev, Mehta, and Zalik*, 229
simultaneous measurement of carbon assimilation and oxygen evolution by, *Walker, Baldry, and Cockburn*, 1419
site of inhibition by UV-irradiation and heat treatment, *Yamashita and Butler*, 2037
stimulation of photoreactions of, by serum albumin, *Friedlander and Neumann*, 1249
Chloroplast membrane,
continuity of, in *Zea mays*, *Rosado-Alberio, Weier, and Stocking*, 1325
Chloroplast pigments,
influence of temperature and light on production of, in maize mutant, *Mil!erd and McWilliam*, 1967
Chloroplast RNA,
effect of light and inhibitors on synthesis, *Ingle*, 1850
Chloroplast shrinkage, light-induced,
detectable after rapid isolation from pea, *Nobel*, 781
Chromatography, gas-liquid,
of trimethylsilyl derivatives of hormones, *Davis, Heinz, and Addicott*, 1389
Chymotrypsin inhibitor,
transitory existence of, in potato, *Ryan, Huisman, and Van Denburgh*, 589
Chymotrypsin inhibitor I,
induced in potato and tomato leaflets, *Ryan*, 1880
synthesis in potato leaflets induced by detachment, *Ryan*, 1859
Circadian rhythm,
of leaf movement in *Coleus*, *Halaban*, 1883, 1887, 1894
Citrus paradisi:
see Grapefruit
Citrus petals,
auxin-induced curvature of, *Goldschmidt*, 1973
Citrus shoots,
growth inhibitors from, *Goldschmidt and Monselise*, 113
Citrus sinesis: *see also* Orange
indoleacetic acid and gibberellic acid in leaf abscission control in, *Lewis and Bakhshi*, 351, 359
CO_2,
role in abscission, *Abeles and Gahagan*, 1255
$^{14}CO_2$,
labeling of carbohydrates in corn kernels by, *Shannon*, 1215
CO_2 concentration,
effect of O_2 inhibition of photosynthesis in wheat leaves, *Jolliffe and Tregunna*, 902
CO_2, dark fixation,
by malic enzyme of *Uromyces phaseoli* and *Puccinia graminis* uredospores, *Rick and Mirocha*, 201
CO_2 evolution,
in light by photosynthesizing and non-photosynthesizing leaves; effect of oxygen, *Hew and Krotkov*, 464
CO_2-free air,
response of stomatal opening in epidermal strips to, *Fischer*, 1947
$^{14}CO_2$ fixation, photosynthetic,
by green flowers of *Cymbidium*, *Ducker and Arditti*, 130
Cocklebur: see *Xanthium pensylvanicum*
Cofactor,
requirements of nitrate reductase from plants, *Schrader, Ritenour, Eilrich, and Hageman*, 930
Cold acclimation,
of *Hedera helix*, role of light in, *Steponkus and Lanphear*, 151
Cold hardiness,
regulation of, in *Acer negundo*, *Irving and Lanphear*, 9
Coleus blumei,
transport of picloram through petioles, *Horton and Fletcher*, 2045
Coleus blumei x *frederici*,
circadian rhythm of leaf movement in, *Halaban*, 1883, 1887, 1894
Conifers,
enzymes of glyoxylate cycle in, *Firenzuoli, Vanni, Mastronuzzi, Zanobini, and Baccari*, 1125
Contact coiling,
membrane changes and water movement associated with in pea tendrils, *Jaffe and Galston*, 537
Contraction,
of *Phaseolus vulgaris* hypocotyl mitochondria, *Earnshaw and Truelove*, 121
Contraction, respiration-linked,
uncoupling of, in corn mitchodria, *Hanson, Miller, and Dumford*, 811
Corn: *see also* Maize *and Zea mays*
atrazine metabolism in, *Shimabukuro*, 1925
chemical characterization of root cell walls, *Dever, Bandurski, and Kivilaan*, 50
effect of fluoride on nucleotides and RNA in roots, *Chang*, 669
inhibition of P-enolpyruvate carboxylase by L-malate in, *Ting*, 1919
labeling of carbohydrates in kernels after $^{14}CO_2$ treatment, *Shannon*, 1215
light-enhanced potassium absorption by leaf tissue, *Rains*, 394
nucleases from, *Wilson*, 1332, 1339
relationship between metabolism and lateral transport in coleoptiles of, *Wilkins and Whyte*, 1435
ribosome particles in mitochondria, *Wilson, Hanson, and Mollenhauer* 1874
uncoupling of respiration-linked contraction mitochondria, *Hanson, Miller, and Dumford*, 811
Corylus avellana: *see* Hazel

Corynebacterium fasciens,
cytokinins in tRNA of, *Matsubara, Armstrong, and Skoog,* 451
Corynebacterium sepedonicum,
biological activity of phytotoxic glycopeptide from, *Strobel and Hess,* 1673
Cotton,
activity of mitochondria from hypocotyls, *Killion, Grooms, and Frans,* 1996
chilling injury to radicle tips of, *Christiansen,* 743
effects of salt secretion on psychrometric determinations of water potential of leaves, *Klepper and Barrs,* 1138
Cotton explants,
auxin transport and conjugation in, *Robinson, Forman, and Addicott,* 1321
influence of manganese on IAA-oxidase system in, *Taylor, Morgan, Joham, and Amin,* 243
Cotton, virescent mutant,
metabolic characteristics, *Benedict and Kohel,* 1611
Creosotebush: *see Larrea divaricata*
Crested wheatgrass,
phosphorylation in seeds of, at low water potentials, *Wilson and Harris,* 61
^{137}Cs,
uptake by *Ramalina reticulata, Handley and Overstreet,* 1401
Cucumber,
changes of phytochrome content during germination of, *Mancinelli and Tolkowsky,* 489
gibberellins in monoecious and gynoecious plants, *Atsmon, Lang, and Light,* 806
Cucumis sativus: see Cucumber
Cucurbita maxima: see Squash
Cucurbita melopepo: see Squash
Cucurbita pepo: see Squash
Culture, continuous flow,
determination of root exudates in, *Richter, Wilms, and Scheffer,* 1741, 1747
Cupressus arizonica,
gibberellin-like substances from, *Ruddat,* 2049
Curvature,
of citrus petals: auxin-induced, *Goldschmidt,* 1973
Cuticles,
isolation with zinc chloride-hydrochloric acid solution, *Holloway and Baker,* 1878
Cyanidium caldarium,
formation and composition of phycocyanin, *Troxler and Lester,* 1737
Cymbidium,
photosynthetic $^{14}CO_2$ fixation by green flowers of, *Ducker and Arditti,* 130
Cytidine,
metabolism in bean leaves, *Ross and Cole,* 1227
Cytidine diphosphate diglyceride,
biosynthesis of, by cauliflower mitochondria, *Sumida and Mudd,* 1162
Cytochrome oxidase: *see* Enzymes
Cytokinin(s),
-abscisic acid antagonism in seed germination, *Khan,* 1463
controlled bud-formation in *Funaria hygrometrica* protonemata, *Brandes and Kende,* 827
in tRNA of *Corynebacterium fascians, Matsubara, Armstrong, and Skoog,* 451
incorporation into RNA, significance, *Kende and Tavares,* 1244
requirement of tissues; effect of 2,4-dichlorophenoxyacetic acid on, *Witham,* 1455
Cytoplasmic RNA,
effect of light and inhibitors on synthesis, *Ingle,* 1850

— D —

DNA synthesis,
in vitro, inhibition of, by auxins, *Schwimmer,* 1006
DNA template,
increase associated with breaking of seed dormancy, *Jarvis, Frankland, and Cherry,* 1734
Dark periods,
and temperature in sugar cane flowering, *Clements,* 57
Daucus carota,
transport of 3-*o*-methylglucose in cells of, *Reinhold and Eshhar,* 1023
Dianthus spp.,
leaf and stem proteins of, *McCown, Beck, and Hall,* 578
2,4-Dichlorophenoxyacetic acid,
on cytokinin requirement of tissues, *Witham,* 1455
Dichlorophenoxyacetones,
effects on auxin-induced growth of *Avena* coleoptile sections, *Masingale, Lewis, Bryant, and Skinner,* 641
3',4'-Dichloroproprionanilide,
mechanism of selective action of, *Yih, McRae, and Wilson,* 1291
3,4-Dichloropropionanilide,
metabolism of the propionic acid moiety, *Still,* 543
Diffusion resistance,
and illuminance of leaves, *Ehrler and van Bavel,* 208
of sunflower leaves, *Hunt, Impens, and Lemon,* 522
Diffusional interference,
between adjacent stomata of a leaf, *Cook and Viskanta,* 1017
Dimethyl sulfoxide,
inhibitor of pollen tube growth, *Dickinson and Cochran,* 411
use in freeze-preservation of cultured flax cells, *Quatrano,* 2057
2,4-Dinitrophenol,
enhancement of IAA oxidation by, *Fox and Purves,* 454
increased root initiation in bean hypocotyls, *Krul,* 439
respiratory response of *Acer pseudoplatanus* cells to, *Givan and Torrey,* 635
Disk thickness,
and respiration of potato tissue; oxygen diffusion, the determining factor, *MacDonald,* 274
Donnan phenomena,
and electrostatic association as mechanisms of ion accumulation, *Hiatt,* 893
Dormancy,
in different clones of *Spirodela polyrrhiza, Perry,* 1866
physical forces in, of *Xanthium* seeds, *Esashi and Leopold,* 871
Douglas-fir,
light intensity and temperature on respiration rate of seedlings, *Brix,* 389

Drought tolerance,
in *Larrea divaricata, Saunier, Hull, and Ehrenreich,* 401
Dryopteris borreri,
biplanar growth in gametophytes in presence of RNA base analogues, *Burns and Ingle,* 1987
Dual isotherm,
for ion absorption in beet tissue: interpretation, *Osmond and Laties,* 747

— E —

Electron donors,
for nitrogenase-dependent acetylene reduction, *Klucas and Evans,* 1458
Electron transport,
laser-activated, in *Chlamydomonas* mutant, *Hildreth,* 303
Electron transport, photosynthetic,
in plastome mutants of *Oenothera, Fork and Heber,* 606
Electron transport system, respiratory,
of *Leptomitus lacteus* and *Apodachlya punctata, Gleason,* 597
Electropotential, cell transmembrane,
and potassium and nitrate uptake in excised pea epicotyls, *Macklon and Higinbotham,* 888
Electrostatic association,
and Donnan phenomena as mechanisms of ion accumulation, *Hiatt,* 893
Enzyme(s),
activation and inhibition of ADP glucose pyrophosphorlyase of leaves, *Sanwal, Greenberg, Hardie, Cameron, and Preiss,* 417
adenine phosphoribosyltransferase: effects of kinetin on activity, *Nicholls and Murray,* 645
aldolase types in photosynthesis organisms, *Willard and Gibbs,* 793
ATP sulfurylase in soybean, *Adams and Johnson,* 2041
changes in activity in etiolated bean leaves after brief illumination, *Filner and Klein,* 1587
changes in sucrose synthetase activity in aging potato tuber slices, *Lavintman and Cardini,* 434
characteristics of nitrate reductase from plants, *Schrader, Ritenour, Eilrich, and Hagemen,* 930
comparative study of enzymes related to serine metabolism in higher plants, *Cheung, Rosenblum, and Sallach,* 1813
cytochrome oxidase of *Nopalea dejecta, Khan, Tewari, Krishnan, and Sanwal,* 1461
D-glyceraldehyde 3-phosphate dehydrogenases of higher plants, *Schulman and Gibbs,* 1805
de novo synthesis of isocitratase and malate synthetase in peanut cotyledons, *Longo,* 660
de novo synthesis of isocitritase in peanut cotyledons, *Gientka-Rychter and Cherry,* 653
δ-aminolevulinic acid transaminase in *Chlorella vulgaris, Gassman, Pluscec, and Bogorad,* 1411
effects of abscisin II on phenylalanine ammonia-lyase activity in excised bean axes, *Walton and Sondheimer,* 467
effect of buffers on linolenic acid as a substrate for lipoxidase, *Zimmerman,* 1656
effect of cultivation temperature on peroxidase isozymes of tobacco tissue culture, *De Jong, Olson, Hawker, and Jansen,* 841
effects of potassium nutrition on ribonuclease in *Zea mays, Hsiao, Hageman, and Tyner,* 1941
enzymatic production of oxalate from oxalacetate, *Chang and Beevers,* 1821
ethylene enhanced release of α-amylase from barley aleurone cells, *Jones,* 442
flavonoid elaborating enzymes from petals of *Impatiens balsamina, Miles and Hagen,* 1347
gibberellic acid-promoted lignification and phenylalanine ammonia-lyase activity in dwarf pea, *Cheng and Marsh,* 1755
glycolate oxidase activity in algae, *Zelitch and Day,* 289
IAA and synthesis of glucanases and pectic enzymes, *Datko and Maclachlan,* 735
identification, isolation and partial purification of peroxidases from extreme dwarf tomato, *Evans,* 1037
increased RNA polymerase associated with breaking of seed dormancy, *Jarvis, Frankland, and Cherry,* 1734
induction of phenylalanine ammonia-lyase and lyase-inactivating system in potato tuber discs, *Zucker,* 365
inhibition of P-enolpyruvate carboxylase by L-malate, *Ting,* 1919
invertase activity and cell growth in lentil epicotyls, *Seitz and Lang,* 1075
isozymes of malate dehydrogenase in several plants, *Weimberg,* 622
L-phenyl ammonia lyase during germination of *Phaseolus vulgaris, Walton,* 1120
malic enzyme in uredospores of *Uromyces phaseoli, and Puccinia graminis, Rick and Mirocha,* 201
of glyoxylate cycle in conifers, *Firenzuoli, Vanni, Mastronuzzi, Zanobini, and Baccari,* 1125
pectinase activity during leaf abscission, *Morre,* 1545
PEP carboxykinase exchange reaction in *Rhodospirillium rubrum, Cooper and Benedict,* 788
phosphofructokinase from Jerusalem artichoke tubers: effects of storage and aging, *Black and Wedding,* 2066
phosphorylases I and II of maize endosperm, *Tsai and Nelson,* 103
photosynthetic, inhibition of formation by inhibitors of photosynthesis, *McMahon and Bogorad,* 188
promotion of invertase activity by gibberellic acid in *Avena* internodes, *Kaufman, Ghosheh, and Ikuma,* 29
properties of ribonucleases and a nuclease from corn, *Wilson,* 1339
properties of ribulose-1,5-diphosphate carboxylase from Chinese cabbage and photosynthetic microorganisms, *Kieras and Haselkorn,* 1264
properties of UDPG:D-fructose-2-glucosyltransferase and UDPG:D-fructose-6-phosphate-2-glucosyltransferase of potato, *Slabnik, Frydman, and Cardini,* 1063
purification of nitrogenase from soybean nodules, *Klucas, Koch, Russell, and Evans,* 1906
pyruvate kinase of K-deficient wheat, *Sugiyama, Goto, and Akazawa,* 730

ribonuclease activity associated with ribosomes of *Zea mays*, *Hsiao*, 1355
separation and purification of ribonucleases and a nuclease from corn, *Wilson*, 1332
stimulation of indoleacetic acid oxidase and inhibition of catalase in cotton extracts by plant acids, *Lane and King*, 1699
template requirement of maize RNA polymerase, *Stout and Mans*, 405
Enzyme levels,
changes in, during germination of wheat, *Firenzuoli, Vanni, Ramponi, and Baccari*, 260
Enzyme secretion,
during leaf abscission, *Morre*, 1545
Ethylene,
and IAA inhibition of root growth, *Andreae, Venis, Jursic and Dumas*, 1375
biogenesis in *Penicillium digitatum*, *Jacobsen and Wang*, 1959
enhanced release of α-amylase from barley aleurone cells, *Jones*, 442
its relationship to inhibition by indole-3-acetic acid of bud growth, *Burg and Burg*, 1069
kinetin, IAA, and gibberellin on production of, *Fuchs and Lieberman*, 2029
mediation of response to malformin by, *Curtis*, 76
mitochondria do not produce, *Ku and Pratt*, 999
responsiveness, senescence, and abscission, *dela Fuente and Leopold*, 1496
reversal of succinic acid and 2,2-dimethyl hydrazide inhibition of apple ripening by, *Looney*, 1133
role in abscission, *Abeles and Gahagan*, 1255
senescence and abscission, *Burg*, 1503
Ethylene analogues,
role in abscission, *Abeles and Gahagan*, 1255
Euglena gracilis,
isolation of mutants with impaired photosynthesis, *Russell and Lyman*, 1284
Euglena gracilis, strain Z,
plastoquinone in photochemical reactions in chloroplasts of, *Chang and Vedvick*, 1661

— F —

Far-red sensitive dark processes,
essential for light- and gibberellin-induced germination of lettuce seed, *Negbi, Black, and Bewley*, 35
Fat metabolism,
long chain fatty acid synthesis in germinating peas, *Macey and Stumpf*, 1637
Fatty acid(s),
of green tobacco plants, *Chu and Tso*, 428
release of, and loss of Hill activity by aging spinach chloroplasts, *Constantopoulos and Kenyon*, 531
Fatty acid, long chain,
synthesis in germinating peas, *Macey and Stumpf*, 1637
Fatty acid synthesis,
acetate binding of chloroplasts as a facet of, *Devor and Mudd*, 853
Fern gametophytes,
biplanar growth in presence of RNA base analogues, *Burns and Ingle*, 1987
is riboflavin the photoreceptor in induction of 2-dimensional growth in?, *Davis*, 1165
Fiber cells,
rotational streaming in, its role in translocation, *Worley*, 1648
Ficus species,
proteolytic activity of latices of, *Williams, Sgarbieri, and Whitaker*, 1083
Flavonoid(s),
photocontrol of, in *Spirodela intermedia*, *McClure*, 193
Flavonoid elaborating enzymes: *see* Enzymes
Flax cells, cultured,
freeze preservation of, *Quatrano*, 2057
Flower pigmentation,
flavonoid elaborating enzymes from petals of *Impatiens balsamina*, *Miles and Hagen*, 1347
Flowering,
carbohydrate changes in cauliflower shoot tip associated with, *Sadik and Ozbun*, 1696
of *Lemna gibba*, light effects, *Cleland and Briggs*, 157
of sugar cane, dark periods, and temperature on, *Clements*, 57
in radish, role of gibberellins, *Suge and Rappaport*, 1208
Flowering response,
photoperiod and circadian rhythm in, *Halaban*, 1894
Fluorescence properties,
of *Chlamydomonas reinhardi* mutants, *Lavorel and Levine*, 1049
Fluoride,
effect on nucleotides and RNA in corn roots, *Chang*, 669
Fraxinus americana,
abscisic acid levels and seed dormancy in, *Sondheimer, Tzou, and Gibson*, 1443
Fucus vesiculosus,
amino acid incorporation in embryo, *Peterson and Torrey*, 941
Funaria hygrometrica,
cytokinin-controlled bud formation in protonemata, *Brandes and Kende*, 827

— G —

Gas chromatography,
of carbohydrates from alfalfa nectar, *Kleinschmidt, Dobrenz and McMahon*, 665
Genetic differences,
in photorespiration: effect on net photosynthesis, *Zelitch and Day*, 1838
Georesponse to acceleration,
thresholds for, in gravity-compensated *Avena* seedlings, *Shen-Miller, Hinchman, and Gordon*, 338
Germination,
by different clones of *Spirodela polyrrhiza*, *Perry*, 1866
changes in enzyme levels during, of wheat, *Firenzuoli, Vanni, Ramponi, and Baccari*, 260
of cucumber seeds, changes in phytochrome content, *Mancinelli and Tolkowsky*, 489
of lettuce seed, far-red sensitive dark processes in, *Negbi, Black, and Bewley*, 35
of tomato seed, action of light of different spectral energy distribution, *Yaniv and Mancinelli*, 117
of wheat, changes in sRNA and ribonuclease activity, *Vold and Sypherd*, 1221
physical forces in, of *Xanthium* seeds, *Esashi and Leopold*, 871

Germination, gibberellic acid-induced,
abscisic acid-cytokinins antagonism in, *Khan*, 1463
Gibberellic acid,
and indoleacetic acid in leaf abscission control, *Lewis and Bakhshi*, 351
and protein synthesis in abscission, *Lewis and Bakhshi*, 359
control of senescence in *Rumex* leaf discs by, *Goldthwaite and Laetsch*, 1855
-induced germination; abscisic acid-cytokinins antagonism in, *Khan*, 1463
interaction with inhibition from *Ceratonia siliqua*, *Corcoran and West*, 859
invertase activity and cell growth in lentil epicotyls, *Seitz and Lang*, 1075
morphogenic responses to, of debudded tobacco, *Skok*, 215
promoted lignification and phenylalanine ammonia-lyase activity, *Cheng and Marsh*, 1755
promotion of growth and invertase activity in *Avena* internodes by, *Kaufman, Ghosheh, and Ikuma*, 29
Gibberellic acid-induced proliferation,
in debudded tobacco plants, relationship of boron to, *Skok*, 384
Gibberellin(s),
from light- and dark-grown pea seedlings, *Jones and Lang*, 629
in monoecious and gynoecious cucumber plants, *Atsmon, Lang, and Light*, 806
of a radiation induced single gene dwarf mutant of bean, *Proano and Greene*, 613
on ethylene production by pea seedlings, *Fuchs and Lieberman*, 2029
role in stem elongation and flowering in radish, *Suge and Rappaport*, 1208
Gibberellin A_3,
in parthenocarpic apple fruit, *Hayashi, Naito, Bukovac, and Sell*, 448
Gibberellin A_1, radioactive,
fate of, in pea and Japanese morning glory seeds, *Barendse, Kende, and Lang*, 815
Gibberellin-induced germination,
of lettuce seed, far-red sensitive dark processes in, *Negbi, Black, and Bewley*, 35
Gibberellin-like activity,
in berries of Tokay grapes, *Iwahori, Weaver, and Pool*, 333
Gibberellin-like substances,
from *Cupressus arizonica*, *Ruddat, Pharis, Aoki, and Crozier*, 2049
Glucanases: *see* Enzymes
Glucans,
biosynthesis from uridine-diphosphate-D-glucose with enzyme preparations, *Flowers, Batra, Kemp, and Hassid*, 1703
Glycine max: *see* Soybean
Glycolate,
metabolism and photorespiration, *Downton and Tregunna*, 923
Glycolate oxidase: *see* Enzymes
Glyoxylate cycle,
in conifers, *Firenzuoli, Vanni, Mastronuzzi, Zanobini, and Baccari*, 1125
Glyoxysomes,
characterization of, from castor bean endosperm, *Breidenbach, Kahn, and Beevers*, 705
Gonadotropin,
promotion of roots on cuttings, *Leshem and Lunenfeld*, 313
Gossypium barbadense: *see* Cotton
Gossypium hirsutum: *see* Cotton
Gossypol,
an uncoupler of cotton mitochondria, *Killion, Grooms, and Frans*, 1996
Grape,
gibberellin-like activity in berries of, *Iwahori, Weaver, and Pool*, 333
ion transport characteristics of root lipids, *Kuiper*, 1372
lipids in relation to chloride transport in roots, *Kuiper*, 1367
Grape berries,
metabolism of sugars and organic acids in, *Hardy*, 224
Grapefruit,
respiration of, harvested at different developmental stages, *Aharoni*, 99
Gravitational force,
wheat seedling growth in absence of, *Lyon*, 1002
Gravity-compensated seedlings,
thresholds for georesponse to acceleration in, *Shen-Miller, Hinchman, and Gordon*, 338
Growth,
and water relations of pine seedlings, *Kaufmann*, 281
cell extensibility in, of *Nitella*, *Green*, 1169
changes in cell wall polysaccharides associated with, *Nevins, English, and Albersheim*, 914
effect of benzimidazole on, of tobacco, *Dyar*, 477
effect of changing stomatal width on, in a pine forest, *Turner and Waggoner*, 973
effect of trifluralin on, of corn, *Schultz, Funderburk, and Negi*, 265
in absence of gravitational force, in wheat seedlings, *Lyon*, 1002
is riboflavin the photoreceptor in induction of 2-dimensional, in fern gametophytes, *Davis*, 1165
of leaves, relationship to water potential, *Boyer*, 1056
promotion of, by gibberellic acid in *Avena* internodes, *Kaufman, Ghosheh, and Ikuma*, 29
Growth, auxin-induced,
effect of dichlorophenoxyacetones on, of *Avena* coleoptile reactions, *Masingale, Lewis, Bryant, and Skinner*, 641
Growth inhibitors,
partition, bioassay, and characterization from citrus shoots, *Goldschmidt and Monselise*, 113
Growth substances,
from *Veratrum tenuipetalum*, *Olney*, 293

— H —

Hazel,
increased DNA template and RNA polymerase associated with breaking of seed dormancy, *Jarvis, Frankland, and Cherry*, 1734

Heat treatment,
site of inhibition in chloroplasts, *Yamashita and Butler*, 2037
Hedera helix,
role of light in cold acclimation of, *Steponkus and Lanphear*, 151
Helianthus annuus: *see* Sunflower
Helminthosporium victoriae toxin,
effect on host cell membranes, *Samaddar and Scheffer*, 21
n-Hentriacontane,
mechanism of biosynthesis in leaves, *Kolattukudy*, 1466
Hexokinase-initiated inhibition,
of oxygen uptake of mitochondria uncoupled by dinitrophenol, *Drury and McCollum*, 1727
Hexose phosphates,
changes in, in *Acer pseudoplatanus* cells in anoxia, *Givan*, 948
High energy reaction,
in seed germination, *Hendricks, Toole, and Borthwick*, 2023
Hill activity,
loss of, and fatty acid release by aging spinach chloroplasts, *Constantopoulos and Kenyon*, 531
Hordeum vulgare: *see* Barley
Hormones,
gas-liquid chromatography of trimethylsilyl derivatives of, *Davis, Heinz, and Addicott*, 1389
in leaf abscission, *Jacobs*, 1480
N-2-Hydroxyethyl-piperazine-N'-2-ethanesulfonic acid buffer,
effect on linolenic acid as a substrate for flaxseed lipoxidase, *Zimmerman*, 1656
Hydroxyproline,
its relation to auxin-induced cell elongation, *Cleland*, 1625
Hydroxyproline, protein-bound,
distribution and metabolism in *Avena* coleoptile, *Cleland*, 865
Hypomyces solani f sp. *cucurbitae*,
effect of infection by, on squash hypocotyls, *Hancock*, 1666

— I —

IAA,
on ethylene production by pea seedlings, *Fuchs and Lieberman*, 2029
relationship between metabolism and lateral transport in corn coleoptiles, *Wilkins and Whyte*, 1435
IAA-oxidase system,
influence of manganese on, in cotton, *Taylor, Morgan, Joham, and Amin*, 243
Illuminance,
and leaf diffusion resistance and transporation, *Ehrler and van Bavel*, 208
Impatiens balsamina,
flavonoid elaborating enzymes from petals of, *Miles and Hagen*, 1347
Indole-3-acetic acid,
and ethylene on bud growth, *Burg and Burg*, 1069
enhancement of oxidation of, by 2,4-dinitrophenol, *Fox and Purves*, 454
inhibition of root growth by, and ethylene, *Andreae, Venis, Jursic, and Dumas*, 1375
morphogenic responses to, of debudded tobacco, *Skok*, 215
Indoleacetic acid,
and gibberellic acid in leaf abscission control, *Lewis and Bakhshi*, 351
and protein synthesis in abscission, *Lewis and Bakhshi*, 359
and synthesis of glucanases and pectic enzymes, *Datko and Maclachlan*, 735
Indole-3-acetic acid-^{14}C,
polar movement of, in roots, *Kirk and Jacobs*, 675
Indoleacetic acid oxidase: *see* Enzymes
Inhibitor,
from *Ceratonia siliqua*: interaction with gibberellic acid, *Corcoran and West*, 859
Invertase: *see* Enzymes
Invertase inhibitors,
isolated from a number of species, *Pressey*, 1430
Ion absorption,
interpretation of dual isotherm for, *Osmond and Laties*, 747
Ion uptake,
and cell transmembrane electropotentials, *Macklon and Higinbotham*, 888
electrostatic association and Donnan phenomena as mechanisms of, *Hiatt*, 893
Ipomoea batatas: *see* Sweet potato
Isatin, ^{14}C-labeled,
metabolism in pea stem sections, *Kutacek and Galston*, 1793
Isocitritase: *see* Enzymes

— J —

Japanese morning glory,
effect of manganese on auxin protector-I of, *Stonier, Rodriguez-Tormes, and Yoneda*, 69
fate of radioactive gibberellin A_1 in seeds of, *Barendse, Kende, and Lang*, 815
mechanism of auxin protection by Protector-I, *Stonier, Yoneda, Rodriguez-Tormes*, 1141
Jerusalem artichoke tubers,
effects of storage and aging on phosphofructokinase, *Black and Wedding*, 2066

— K —

K,
uptake by excised maize roots, *Maas and Leggett*, 2054
KCl concentration,
response of stomatal opening in epidermal strips to, *Fischer and Hsiao*, 1953
α-Ketoglutarate,
metabolism of, by roots, *Titus, Splittstoesser, and Spencer*, 619
Kinetin,
and substrate salinity on protein synthesis in pea roots, *Kahane and Poljakoff-Mayber*, 1115
effect on adenine phosphoribosyltransferase activity, *Nicholls and Murray*, 645
effect of indole-3-acetic acid and ethylene inhibition of bud growth, *Burg and Burg*, 1069
-naphthaleneacetic acid interaction on RNA and protein in senescing leaves, *VonAbrams and Pratt*, 1271
on ethylene production by pea seedlings, *Fuchs and Lieberman*, 2029

— L —

Lactuca sativa: see Lettuce
Lamellar protein,
formation of, by plastids of *Phaseolus vulgaris, Margulies and Parenti,* 504
Larrea divaricata,
drought tolerance in, *Saunier, Hull, and Ehrenreich,* 401
Laser-activated,
electron transport in *Chlamydomonas* mutant, *Hildreth,* 303
Leaf (leaves),
CO_2 evolution in light by, *Hew and Krotkov,* 464
relationship of water potential to growth of, *Boyer,* 1056
translocation of ^{14}C-assimilates and phosphate in detached bean, *Leonard and Glenn,* 1380
translocation of ^{14}C from a, *Shiroya,* 1605
Leaf abscission,
interaction of indoleacetic acid and gibberellic acid in control of, *Lewis and Bakhshi,* 351
protein synthesis in, *Lewis and Bakhshi,* 359
Leaf movement,
of *Coleus,* circadian rhythm, *Halaban,* 1887
Leaf water potential,
effect of changing stomatal width on, in a pine forest, *Turner and Waggoner,* 973
Lemna gibba,
light effects on flowering of, *Cleland and Briggs,* 157
Lens culinaris: see also Lentil
polar transport of IAA-^{14}C in roots of, *Kirk and Jacobs,* 675
Lentil,
invertase activity and cell growth in epicotyls, *Seitz and Lang,* 1075
Leptomitus lacteus,
respiratory electron transport system in, *Gleason,* 597
Lettuce,
abscisic acid-cytokinins antagonism in germination of, *Khan,* 1463
Lettuce seed,
far-red sensitive dark processes essential for light- and gibberellin-induced germination of, *Negbi, Black, and Bewley,* 35
Light,
changes in chloroplasts of *Sphaerocarpos donnellii, Miller and Machlis,* 723
effect of oxygen on CO_2 evolution in, by leaves, *Hew and Krotkov,* 464
effect on chloroplast and cytoplasmic RNA synthesis, *Ingle,* 1850
effect on circadian rhythm of leaf movement in *Coleus, Halaban,* 1883, 1887
effect on growth of *Sphaerocarpos donnellii, Miller and Machlis,* 714
influence on chloroplast pigment production in maize mutant, *Millerd and McWilliam,* 1967
of different spectral energy distribution: action on tomato seed germination, *Yaniv and Mancinelli,* 117
opposing effects in seed germination, *Hendricks, Toole, and Borthwick,* 2023
requirement for betalain biogenesis, *Wohlpart and Mabry,* 457
response of stomatal opening in epidermal strips to, *Fischer,* 1947
Light-enhanced potassium absorption,
by corn leaf tissue, *Rains,* 394
Light-induced germination,
of lettuce seed, far-red sensitive dark processes in, *Negbi, Black, and Bewley,* 35
Light intensity,
and temperature on respiration rate of Douglas-fir seedlings, *Brix,* 389
effect on O_2 inhibition of photosynthesis in wheat leaves, *Jolliffe and Tregunna,* 902
Lignification,
and phenylalanine ammonia lyase activity in dwarf pea, *Cheng and Marsh,* 1755
Lilium longiflorum: see also Lily
dimethyl sulfoxide inhibition of pollen tube growth, *Dickinson and Cochran,* 411
Lily,
starch synthesis and respiration in germinating pollen, *Dickinson,* 1
Linolenic acid,
effect of zwitterionic buffers on, as a substrate for flaxseed lipoxidase, *Zimmerman,* 1656
Lipid synthesis,
and ultrastructure of isolated barley chloroplasts, *Appelqvist, Stumpf, and von Wettstein,* 163
Lipid(s),
in relation to chloride transport in grape roots, *Kuiper,* 1367
transport characteristics of, in relation to chloride transport, *Kuiper,* 1372
Low water potentials,
phosphorylation in crested wheatgrass seeds at, *Wilson and Harris,* 61
Lupin,
biosynthesis of glucans from UDP-D-glucose by preparations of, *Flowers, Batra, Kemp, and Hassid,* 1703
Lupinus albus: see Lupin
Lycopersicon esculentum: see Tomato

— M —

Maize: *see also* Corn *and Zea mays*
conversion of *myo*-inositol to uronic acid and polysaccharides in root tips of, *Roberts, Deshusses, and Loewus,* 979
inhibition of formation of photosynthetic enzymes by inhibitors of photosynthesis, *McMahon and Bogorad,* 188
phosphorylases I and II of endosperm, *Tsai and Nelson,* 103
photorespiration in, *Zelitch,* 1829
^{83}Rb and K uptake by excised roots, *Maas and Leggett,* 2054
template requirement of RNA polymerase, *Stout and Mans,* 405
Maize, albescent mutant,
light sensitivity of plastids and pigments in, *Sander, Laber, Bell, and Hamilton,* 693
Maize mutant,
chloroplast pigment production in, *Millerd and McWilliam,* 1967
Malate dehydrogenase; *see* Enzymes
Malate synthetase; *see* Enzymes
Malformin,
mediation of response to, by ethylene, *Curtis,* 76

Malic enzyme: *see* Enzymes
Malus sylvestris: *see* Apple
Manganese,
absorption by excised barley roots, *Maas, Moore, and Mason,* 527
effect of, on auxin protector-I of Japanese morning glory, *Stonier, Rodriguez-Tormes, and Yoneda,* 69
influence of, on IAA-oxidase system in cotton, *Taylor, Morgan, Joham, and Amin,* 243
Medicago sativa: see Alfalfa
Membrane changes,
associated with contact coiling of pea tendrils, *Jaffe and Galston,* 537
Membrane chloroplast,
continuity of, in *Zea mays, Rosado-Alberio, Weier, and Stocking,* 1325
γ-Methylaminobutyraldehyde,
its role in nicotine biosynthesis, *Mizusaki, Kisaki, and Tamaki,* 93
3-*o*-Methylglucose,
transport of, into and out of cells of *Daucus carota* roots, *Reinhold and Eshhar,* 1023
Microbodies,
structure, in abscission cells, *Jensen and Valdovinos,* 2062
Mitochondria,
biosynthesis of cytidine diphosphate diglyceride by, of cauliflower, *Sumida and Mudd,* 1162
do not produce ethylene, *Ku and Pratt,* 999
effect of ozone on swelling of, *Lee,* 133
energy-dependent calcium transport in, *Elzam and Hodges,* 1108
from cotton hypocotyls: oxidative and phosphorylative activities, *Killion, Grooms, and Frans,* 1996
hexokinase-initiated inhibition of oxygen uptake by, uncoupled by dinitrophenol, *Drury and McCollum,* 1727
intermediate reactions of oxidative phosphorylation in cabbage, *Lotlikar and Remmert,* 327
isolation from tomato fruit, *Ku, Pratt, Spurr, and Harris,* 883
isolation from wheat seedlings, *Sarkissian and Srivastava,* 1406
recovery from radiation damage to, in pear fruit; its association with senescence, *Romani, Yu, Ku, Fisher, and Dehgan,* 1089
ribosome particles in, *Wilson, Hanson, and Mollenhauer,* 1874
succinate oxidation in tomato fruit, *Drury, McCollum, and Garrison,* 248
swelling and contraction of, from *Phaseolus vulgaris* hypocotyl, *Earnshaw and Truelove,* 121
ultrastructure and purification, *Baker, Elfvin, Biale, and Honda,* 2001
uncoupling of respiration-linked contraction in corn, *Hanson, Miller, and Dumford,* 811
Mitochondria, higher plant,
respiratory chain components of, *Lance and Bonner,* 756
Monterey pine,
water stress and soil temperature effects in seedlings of, *Babalola, Boersma, and Youngberg,* 515
Movement, lateral,
of auxin in phototropism, *de la Fuente and Leopold,* 1031
Mung bean,
biosynthesis of glucans from UDP-D-glucose by preparations of, *Flowers, Batra, Kemp, and Hassid,* 1703
pathway of uridine diphosphate *N*-acetyl-D-glucosamine biosynthesis in, *Mayer, Bikel, and Hassid,* 1097
substances essential for photoreversible attachment of root tips to glass, *Tanada,* 2070
ubiquinone in submitochondrial particles from, *Beyer, Peters, and Ikuma,* 1395
Myo-inositol,
conversion to phytic acid in *Wolffiella floridana Roberts and Loewus,* 1710
conversion to uronic acid and polysaccharides in maize root tips, *Roberts, Deshusses, and Loewus,* 979

— N —

N_2 fixation,
acetylene-ethylene assay for, *Hardy, Holsten, Jackson, and Burns,* 1185
N-Tris (hydroxymethyl) methyl glycine buffer,
effect on linolenic acid as a substrate for flaxseed lipoxidase, *Zimmerman,* 1656
NADP, NADPH,
levels in low temperature hardened pea, *Kuraishi, Arai, Ushijima, and Tazaki,* 238
Naphthaleneacetic acid,
-kinetin interaction on RNA and protein of senescing leaves, *VonAbrams and Pratt,* 1271
Nicotiana rustica: see Tobacco
Nicotiana tabacum: see also Tobacco
tryptophan biosynthesis in cell cultures of, *Delmer and Mills,* 81
Nicotinamide nucleotide coenzymes,
changes in, in barley leaves infected with powdery mildew, *Ryrie and Scott,* 687
Nicotine,
role of γ-methylaminobutyraldehyde in biosynthesis of, *Mizusaki, Kisaki, and Tamaki,* 93
Nitella axillaris,
cell extensibility in, *Green,* 1169
Nitrate,
uptake and cell transmembrane electropotential in excised pea epicotyls, *Macklon and Higinbotham,* 888
Nitrate assimilation,
role of calcium in, *Paulsen and Harper,* 775
Nitrate reductase: *see* Enzymes
Nitrogenase: see also Enzymes
electron donor system for acetylene reduction dependent upon, *Klucas and Evans,* 1458
Nodulation,
in *Trifolium subterraneum,* effects of calcium, *Lowther and Loneragan,* 1362
Nopalea dejecta,
cytochrome oxidase of, *Khan, Tewari, Krishnan, and Sanwal,* 1461
Nuclease: *see* Enzymes
Nucleic acid(s),
of soybean tissues, bacterial contribution to precursor incorporation into, *Sobota, Leaver, and Key,* 907
Nucleic acid synthesis,
effect of trifluralin on, in corn, *Schultz, Funderburk, and Negi,* 265
Nucleotide(s),
effect of fluoride on, in corn roots, *Chang,* 669

Nucleotide sequence,
of ribosomal RNA, homologies in plants, *Trewavas, and Gibson,* 445
Nucleotides, soluble,
composition in developing wheat grain, *Jenner,* 41
Nyctinasty,
pulvini as phytochrome photoreceptor in, in *Albizzia julibrissin, Koukkari and Hillman,* 698

— O —

O_2,
role in abscission, *Abeles and Gahagan,* 1255
Oak,
turgor pressure in phloem of, *Hammel,* 1042
Oat: *see also Avena sativa*
cellulose synthesis in, from UDP glucose, *Ordin and Hall,* 473
effect of *Helminthosporium victoriae* on cell membranes of, *Samaddar and Scheffer,* 21
properties of phytochrome from, *Briggs, Zollinger, and Platz,* 1239
Oenothera mutants,
electron transport reactions of photosynthesis in, *Fork and Heber,* 606
Orange,
respiration of, harvested at different developmental stages, *Aharoni,* 99
Organic acids,
metabolism of, in immature grape berries, *Hardy,* 224
stimulation of indoleacetic acid oxidase and inhibition of catalose by, *Lane and King,* 1699
Oxalate,
biosynthesis in plant tissues, *Chang and Beevers,* 1821
Oxidative activity,
of mitochondria from cotton hypocotyls, *Killion, Grooms, and Frans,* 1996
Oxygen,
effect of CO_2 evolution in light by photosynthesizing and non-photosynthesizing leaves, *Hew and Krotkov,* 464
Oxygen diffusion,
and the relation between disk thickness and respiration of potato tissue, *MacDonald,* 274
Oxygen evolution,
and permeability of outer envelope of isolated chloroplasts, *Robinson and Stocking,* 1597
by isolated chloroplasts, *Walker, Baldry, and Cockburn,* 1419
Oxygen inhibition,
of photosynthesis in wheat leaves, *Jolliffe and Tregunna,* 902
Oxygen uptake,
hexokinase-initiated inhibition in mitochondria uncoupled by dinitrophenol, *Drury and McCollum,* 1727
Oxyhydrogen reaction,
participation of reductive pentose phosphate cycle in, *Russell and Gibbs,* 649
Ozone,
effect of, on swelling of tobacco mitochondria, *Lee,* 133

— P —

Paraffins,
biosynthetic mechanisms of *n*-hentriacontane, *Kolattukudy,* 1466
elongation-decarboxylation mechanism in biosynthesis of, in leaves, *Kolattukudy,* 375
Paraffins, branched,
species specificity in biosynthesis of, *Kolattukudy,* 1423
Pea,
differences in photoresponse and phytochrome between etiolated and de-etiolated stem tissue, *Fox and Hillman,* 1799
effect of substrate salinity on protein synthesis in roots, *Kahane and Poljakoff-Mayber,* 1115
ethylene and IAA on root growth of, *Andreae, Venis, Jursic, and Dumas,* 1375
ethylene and indole-3-acetic acid on bud growth of, *Burg and Burg,* 1069
fate of radioactive gibberellin A_1 in seeds of, *Barendse, Kende, and Lang,* 815
gibberellic acid-promoted lignification and phenylalanine ammonia-lyase activity, *Cheng and Marsh,* 1755
gibberellins from light- and dark-grown seedlings, *Jones and Lang,* 629
IAA and synthesis of glucanases and pectic enzymes, *Datko and Maclachlan,* 735
kinetin, IAA, and gibberellin on ethylene production by seedlings, *Fuchs and Lieberman,* 2029
light-induced chloroplast shrinkage *in vivo* detectable after rapid isolation, *Nobel,* 781
long chain fatty acid synthesis in germinating, *Macey and Stumpf,* 1637
membrane changes in water movement in contact coiling of tendrils, *Jaffe and Galston,* 537
metabolism of isatin and anthranilate in stem sections, *Kutacek and Galston,* 1793
NADP and NADPH levels in, hardened against chilling injury, *Kuraishi, Arai, Ushijima, and Tazaki,* 238
potassium concentrations and transmembrane potentials in roots, *Etherton,* 838
response of tissue with different phytochrome contents to different photostationary states, *Fox and Hillman,* 823
seedling growth from seeds with and without seedcoat after soaking, *Larson,* 255
transport of picloram through stem sections, *Horton and Fletcher,* 2045
Pea epicotyls, excised,
potassium and nitrate uptake and cell transmembrane electropotentials in, *Macklon and Higinbotham,* 888
Peanut,
de novo synthesis of isocitratase and malate synthetase in cotyledons, *Longo,* 660
de novo synthesis of isocitritase in cotyledons,, *Gientka-Rychter and Cherry,* 653
Pear,
diurnal pattern of water potential in, *Klepper,* 1931
protein synthesis in relation to ripening of fruit, *Frenkel, Klein, and Dilley,* 1146
Pear fruit,
senescence and recovery from radiation damage to mitochondria in, *Romani, Yu, Ku, Fisher, and Dehgan,* 1089

Pectic enzymes: *see* Enzymes
Penicillium digitatum,
biogenesis of ethylene in, *Jacobsen and Wang*, 1959
Penicillium notatum, KCl-habituated,
ribonucleotide-induced recovery of, *Siegel and Roberts*, 73
PEP carboxykinase: *see* Enzymes
Permeability,
of alcohol-treated red beet tissue, effect of sterols, *Grunwald*, 484
of outer envelope of isolated chloroplasts, *Robinson and Stocking*, 1597
Peroxidase: *see* Enzymes
Phaeodactylum tricornutum,
photosynthetic enhancement in, *Mann and Myers*, 1991
Pharbitis nil: see Japanese morning glory
Phascolus aureus: see Mung bean
Phaseolus vulgaris: see also Bean
in vitro protein synthesis by plastids of, *Margulies, Gantt, and Parenti*, 495, 504
L-phenylalanine ammonia lyase during germination, *Walton*, 1120
polar movement of IAA-^{14}C in roots, *Kirk and Jacobs*, 675
swelling and contraction of hypocotyl mitochondria of, *Earnshaw and Truelove*, 121
L-Phenylalanine ammonia-lyase: *see* Enzymes
L-Phenylalanine ammonia-lyase: *see* Enzymes
Phloem,
turgor pressure in, of oak, *Hammel*, 1042
Phosphate,
translocation of, in detached bean leaves, *Leonard and Glenn*, 1380
Phosphate esters,
levels in *Spirodela oligorrhiza*, *Bieleski*, 1297
Phosphofructokinase: *see* Enzymes
Phospholipid,
synthesis in aging potato tissue, *Tang and Castelfranco*, 1232
Phosphorus compounds,
effects of phosphorus deficiency on levels of, in *Spirodela oligorrhiza*, *Bieleski*, 1309
Phosphorus deficiency,
effects on levels of phosphorus compounds in *Spirodela oligorrhiza*, *Bieleski*, 1309
Phosphorylases I and II: *see* Enzymes
Phosphorylation,
in crested wheatgrass seeds at low water potentials, *Wilson and Harris*, 61
Phosphorylation, oxidative,
intermediate reactions of, in cabbage mitochondria, *Lotlikar and Remmert*, 327
Phosphorylative activity,
of mitochondria from cotton hypocotyls, *Killion, Grooms, and Frans*, 1996
Photo-assimilated ^{14}C,
seasonal changes in distribution of, in pine, *Ursino, Nelson, and Krotkov*, 845
Photochemical reactions,
plastoquinones in, of *Euglena gracilis* strain Z, *Chang and Vedvick*, 1661
Photocontrol,
of *Spirodela intermedia* flavonoids, *McClure*, 193
Photomorphogenesis,
in *Sinningia speciosa*, *Satter and Wetherell*, 953, 961
Photophosphorylation,
with tris-washed chloroplasts, *Yamashita and Butl* 1978
Photoreactions,
of chloroplasts, stimulation by serum albumin, *Fri lander and Neumann*, 1249
Photoreactivation,
of *Agmenellum quadruplicatum* after UV irradiatio *Van Baalen*, 1689
Photoreduction,
participation of reductive pentose phosphate cycle i *Russell and Gibbs*, 649
with tris-washed chloroplasts, *Yamashita and Butle* 1978
Photorespiration,
and glycolate metabolism, *Downton and Tregunn* 923
during photosynthesis, estimated by use of $^{14}CO_2$ *Samish and Koller*, 1129
effect of genetic differences in, on net photosynthesis in tobacco, *Zelitch and Day*, 1838
investigations with a sensitive ^{14}C assay, *Zelitch* 1829
Photoresponse,
differences in phytochrome and, in etiolated and de-etiolated pea stem tissue, *Fox and Hillman*, 1799
Photoreversible attachment,
of root tips to glass, substances essential for, *Tanada*, 2070
Photostationary states,
response of tissue with different phytochrome contents to various initial, *Fox and Hillman*, 823
Photosynthesis,
aldolase type in, *Willard and Gibbs*, 793
as a function of water stress and soil temperature in Monterey pine seedlings, *Babalola, Boersma, and Youngberg*, 515
by isolated chloroplasts, *Walker, Baldry, and Cockburn*, 1419
effect of genetic differences in photorespiration on, *Zelitch and Day*, 1838
electron transport reactions of, in plastome mutants of *Oenothera*, *Fork and Heber*, 606
estimation of photorespiration during, *Samish and Koller*, 1129
fluorescence of *Chlamydomonas reinhardi* mutants having impaired, *Lavorel and Levine*, 1049
inhibition of formation of enzymes by photosynthetic inhibitors, *McMahon and Bogorad*, 188
isolation of *Euglena gracilis* mutants with impaired, *Russell and Lyman*, 1284
of *Agmenellum quadruplicatum*, effects of UV irradiation, *Van Baalen*, 1689
O_2 inhibition of, in wheat leaves, *Jolliffe and Tregunna*, 902
seasonal course in young *Pinus resinosa* trees, *Gordon and Larson*, 1617
Photosynthesis, net,
decrease in, caused by respiration, *Bravdo*, 479
Photosynthetic electron pathway,
site of inhibition by UV-irradiation and heat treatment, *Yamashita and Butler*, 2037
Photosynthetic enhancement,
in *Phaeodactylum tricornutum*, *Mann and Myers*, 1991
Photosynthetic microorganisms,
properties of ribulose-1,5-diphosphate carboxylase from, *Kieras and Haselkorn*, 1264

Phototropism,
lateral movement of auxin in, *de la Fuente and Leopold,* 1031
second positive response in *Avena* coleoptile, *Everett and Thimann,* 1786
Phycocyanin,
formation and composition in *Cyanidium caldarium, Troxler and Lester,* 1737
Phycomyces blakesleeanus,
carotenes and retinal in mutants, *Meissner and Delbruck,* 1279
re-examination of light-induced ATP concentration changes in sporangiophores, *Shropshire and Bergman,* 1317
Phytic acid,
conversion of *myo*-inositol to, in *Wolffiella floridana, Roberts and Loewus,* 1710
Phytochrome,
action of light with different spectral energy distribution on tomato seed germination, *Yaniv and Mancinelli,* 117
and changes in enzymatic activities in etiolated bean leaves, *Filner and Klein,* 1587
changes in content during germination of cucumber seeds, *Mancinelli and Tolkowsky,* 489
control of photomorphogenesis in *Sinningia speciosa, Satter and Wetherell,* 953, 961
dark reversion process *in vitro, Taylor,* 767
differences in photoresponse and, in etiolated and deetiolated pea stem tissue, *Fox and Hillman,* 1799
from oat seedlings, properties of, *Briggs, Zollinger, and Platz,* 1239
in nyctinasty in *Albizzia julibrissin,* localized in pulvini, *Koukkari and Hillman,* 698
kinetically distinguishable populations of, *Purves and Briggs,* 1259
response of tissue with different contents to different photostationary states, *Fox and Hillman,* 823
stable concentrations of, in *Pisum* under continuous red light, *Clarkson and Hillman,* 88
Phytotoxic glycopeptide,
produced by *Corynebacterium sepedonicum,* biological activity of, *Strobel and Hess,* 1673
Picloram,
transport through petioles and stems, *Horton and Fletcher,* 2045
Pigments,
light sensitivity of, in albescent maize mutant, *Sander, Laber, Bell, and Hamilton,* 693
Pine,
water relations and growth of, *Kaufmann,* 281
Pinus radiata: see Monterey pine
Pinus resinosa,
effects of stomatal closure in a forest of, *Turner and Waggoner,* 973
seasonal course of photosynthesis and respiration in young trees, *Gordon and Larson,* 1617
Pinus strobus: see also Pine
seasonal changes in distribution of photo-assimilated ^{14}C in, *Ursino, Nelson, and Krotkov,* 845
Pinus taeda: see Pine
Pisum sativum: see also Pea
stable concentrations of phytochrome in, under red light, *Clarkson and Hillman,* 88
Pith tissue,
structural, physiological, and biochemical gradients in tobacco, *Lavee and Galston,* 1760
Plastids,
developmental physiology of, *Kahn,* 1769, 1781
light sensitivity of, in albescent maize mutant, *Sander, Laber, Bell, and Hamilton,* 693
Plastoquinones,
in algae, *Sun, Barr, and Crane,* 1935
in photochemical reactions in chloroplasts of *Euglena gracilis* strain Z, *Chang and Vedvick,* 1661
Poa pratensis,
opposing actions of light in seed germination, *Hendricks, Toole, and Borthwick,* 2023
Polar movement,
of IAA-^{14}C in roots, *Kirk and Jacobs,* 675
Pollen,
starch synthesis and respiration in germinating, *Dickinson,* 1
Pollen tube growth,
inhibition by dimethyl sulfoxide, *Dickinson and Cochran,* 411
Polysaccharides, acidic,
conversion of *myo*-inositol and pentose units of, in maize root tips, *Roberts, Deshusses, and Loewus,* 979
Polysaccharides, cell wall,
changes in, associated with growth of seedlings, *Nevins, English, and Albersheim,* 914
Potassium,
absorption in corn leaf tissue, *Rains,* 394
concentrations and transmembrane potentials in pea roots, *Etherton,* 838
effect of benzimidazole on content, in tobacco, *Dyar,* 477
uptake and cell transmembrane electropotential in excised pea epicotyls, *Macklon and Higinbotham,* 888
Potassium absorption,
effects of calcium and potassium absorption, *Johansen, Edwards, and Loneragan,* 1722
role of, in stomatal opening in epidermal strips, *Fischer and Hsiao,* 1953
Potassium deficiency,
pyruvate kinase of wheat under, *Sugiyama, Goto, and Akazawa,* 730
Potassium nutrition,
on RNA and ribonuclease in *Zea mays, Hsiao, Hageman, and Tyner,* 1941
Potato,
changes in sucrose synthetase activity in tuber slices, *Lavintman and Cardini,* 434
disk thickness and respiration of, oxygen diffusion, the determining factor, *MacDonald,* 274
induction of phenylanine ammonia-lyase and lyase-inactivating system in tuber discs, *Zucker,* 365
phospholipid synthesis in aging tuber tissue, *Tang and Castelfranco,* 1232
properties of UDPG:D-fructose-2-glucosyltransferase and UDPG:D-fructose-6-phosphate-2-glycosyltransferase, *Slabnik, Frydman, and Cardini,* 1063
synthesis of chymotrypsin inhibitor I in leaflets, induced by detachment, *Ryan,* 1859, 1880
transitory existence of a chymotrypsin inhibitor in, *Ryan, Huisman, and Van Denburgh,* 589
Potato, tuber slices,
ribosomal RNA synthesis in, *Sampson and Laties,* 1011
Powdery mildew,
infection of barley leaves, changes in nicotinamide nucleotide coenzyme in, *Ryrie and Scott,* 687

Press,
for anaerobic disintegration of tissue, *Woodbury and Stahmann*, 437
Prolamellar bodies,
tubular membranes in, *Kahn*, 1769
Protector-I,
of Japanese morning glory, mechanism of action, *Stonier, Yoneda, and Rodriguez-Tormes*, 1141
Protein,
amino acid incorporation into, in *Fucus* embryo, *Peterson and Torrey*, 941
hormone interactions on content in senescing leaves, *VonAbrams and Pratt*, 1271
synthesis and abscission, *Abeles*, 1577
Protein-bound hydroxyproline,
distribution and metabolism of, in *Avena* coleoptile, *Cleland*, 865
Protein(s), leaf and stem,
extraction and separation of basic, water-soluble fraction, *McCown, Beck, and Hall*, 578
Protein(s), reserve,
changes in, of germinating soybean seeds, *Catsimpoolas, Campbell, and Meyer*, 799
Protein synthesis,
effect of substrate salinity on, in pea roots, *Kahane and Poljakoff-Mayber*, 1115
in leaf abscission, *Lewis and Bakhshi*, 359
in relation to ripening of pear fruits, *Frenkel, Klein, and Dilley*, 1146
in vitro, by plastids of *Phaseolus vulgaris, Margulies, Gantt, and Parenti*, 495, 504
Proteolytic activity,
in latices of *Ficus* species, *Williams, Sgarbieri, and Whitaker*, 1083
Protochlorophyllide,
photoconversion and tube transformation by flash irradiation in bean leaf plastids, *Kahn*, 1781
resynthesis in dark-grown bean leaves, *Akoyunoglou and Siegelman*, 66
Photochlorophyllide holochrome,
purification of, from bean leaves, *Schopfer and Siegelman*, 990
Protonemata,
cytokinin controlled bud formation in *Funaria hygrometrica, Brandes and Kende*, 827
Pseudotsuga menziesii: see Douglas-fir
Psychrometric determinations,
of water potential of cotton leaves, effect of salt secretion on, *Klepper and Barrs*, 1138
Pteridium aquilinum,
is riboflavin the photoreceptor in induction of 2-dimensional growth of gametophytes?, *Davis*, 1165
Puccinia graminis,
malic enzyme in uredospores of, *Rick and Mirocha*, 201
Pulvini,
as phytochrome photoreceptors in nyctinasty in *Albizzia julibrissin, Koukkari and Hillman*, 698
Puromycin,
effect on ribosomal RNA synthesis in potato tuber slices, *Sampson and Laties*, 1011
Pyrophosphate,
media for isolation of chloroplasts, *Cockburn, Walker, and Baldry*, 1415
Pyrus communis: see Pear
Pyruvate,
respiratory response of *Acer pseudoplatanus* cells, *Givan and Torrey*, 635
Pyruvate kinase: *see* Enzymes

— Q —

Quercus rubrum: see Oak

— R —

^{86}Rb,
uptake by excised maize roots, *Maas and Leggett*, 2054
sRNA,
changes in, during germination of wheat, *Vold and Sypherd*, 1221
tRNA,
cytokinins in, of *Corynebacterium fasciens, Matsubara, Armstrong, and Skoog*, 451
RNA,
effect of fluoride on, in corn roots, *Chang*, 669
effect of light and inhibitors on synthesis in chloroplast and cytoplasm, *Ingle*, 1850
effects of potassium nutrition on, in *Zea mays, Hsiao, Hageman, and Tyner*, 1941
from wheat leaves and chloroplasts, *Hadziyev, Mehta, and Zalik*, 229
hormone interaction on content in senescing leaves, *VonAbrams and Pratt*, 1271
significance of cytokinin incorporation into, *Kende and Tavares*, 1244
synthesis and abscission, *Abeles*, 1577
RNA base analogues,
biplanar growth of fern gametophytes in presence of, *Burns and Ingle*, 1987
RNA polymerase: *see* Enzymes
RNA, ribosomal,
nucleotide sequence homologies in plants, *Trewavas and Gibson*, 445
synthesis in newly sliced discs of potato tuber, *Sampson and Laties*, 1011
synthesis and stability of chloroplast, *Ingle*, 1448
RNA synthesis,
in auxin induction of cell enlargement, *Nooden*, 140
Radiation damage,
to mitochondria: compensatory response and senescence in pear fruit, *Romani, Yu, Ku, Fisher, and Dehgan*, 1089
Radish,
role of gibberellins in stem elongation and flowering, *Suge and Rappaport*, 1208
synthesis and stability of chloroplast ribosomal-RNAs, *Ingle*, 1448
Ramalina reticulata,
uptake of carrier-free ^{137}Cs by, *Handley and Overstreet*, 1401
Raphanus sativus: see Radish
Red beet,
effect of sterols on permeability of alcohol-treated tissue, *Grunwald*, 484
Red light,
stable concentrations of phytochrome in *Pisum* under, *Clarkson and Hillman*, 88
Red-light requiring reaction,
and phytochrome interaction in stem elongation in *Sinningia speciosa, Satter and Wetherell*, 961
Reductive pentose phosphate cycle,
participation of, in photoreduction and oxyhydrogen reaction in *Scenedesmus obliquus, Russell and Gibbs*, 649

Respiration
and disk thickness in potato tissue: oxygen diffusion, the determining factor, *MacDonald*, 274
and starch synthesis in germinating lily pollen, *Dickinson*, 1
decrease in net photosynthesis by, *Bravdo*, 479
light intensity and temperature on, of Douglas-fir seedlings, *Brix*, 389
of orange and grapefruit harvested at different developmental stages, *Aharoni*, 99
of squash hypocotyls: effect of *Hypomyces solani* infection, *Hancock*, 1666
seasonal course in young *Pinus resinosa* trees, *Gordon and Larson*, 1617
Respiration climacteric,
changes occurring in apple peel discs during the development of, *Hulme, Rhodes, Galliard, and Wooltorton*, 1154
Respiration-linked contraction,
uncoupling of, in corn mitochondria, *Hanson, Miller, and Dumford*, 811
Respiratory chain components,
of higher plant mitochondria, *Lance and Bonner*, 756
Respiratory response,
of *Acer pseudoplatanus* cells to pyruvate and 2,4-DNP, *Givan and Torrey*, 635
Retinal,
in *Phycomyces blakesleeanus* mutants, *Meissner and Delbruck*, 1279
Rhodospirillum rubrum,
PEP carboxykinase exchange reaction in, *Cooper and Benedict*, 788
Riboflavin,
the photoreceptor in induction of 2-dimensional growth in fern gametophytes?, *Davis*, 1165
Ribonuclease: *see also* Enzymes
changes in activity during germination of wheat, *Vold and Sypherd*, 1221
Ribonuclease-insensitive amino-acid incorporation,
in *Phaseolus vulgaris* plastids, *Margulies, Gantt, and Parenti*, 495
Ribonucleotide-induced recovery,
of KCl-habituated *Penicillium notatum*, *Siegel and Roberts*, 73
Ribosome(s),
of *Zea mays*, ribonuclease activity associated with, *Hsiao*, 1355
Ribosome particles,
in corn mitochondria, *Wilson, Hanson, and Mollenhauer*, 1874
Ribulose-1,5-diphosphate carboxylase: *see* Enzymes
Rice,
enzymic mechanism of starch breakdown in germinating seeds, *Murata, Akazawa, and Fukuchi*, 1899
Ricinus communis: see Castor bean
Ripening,
inhibition of, by succinic acid 2,2-dimethyl hydrazide and its reversal by ethylene, *Looney*, 1133
of pear fruit and protein synthesis, *Frenkel, Klein, and Dilley*, 1146
Root(s),
absorption and transport of rubidium by bean, *Steward and Koontz*, 583
Ca and Sr transport in segments of, *Hutchin and Vaughan*, 1913
effect of fluoride on nucleotides and RNA in germinating corn, *Chang*, 669
inhibition of water uptake by ammonia in, *Stuart and Haddock*, 345
metabolism of α-ketoglutarate by, *Titus, Splittstoesser, and Spencer*, 619
polar movement of IAA-^{14}C in, *Kirk and Jacobs*, 675
Root development,
and anthocyanin biosynthesis in first internodes on sorghum, *Stafford*, 318
Root exudates,
determination in a sterile continuous flow culture, *Richter, Wilms, and Scheffer*, 1741, 1747
variations in exduation intensity in alfalfa, *Richter, Wilms, and Scheffer*, 1747
Root growth,
ethylene and IAA on, *Andreae, Venis, Jursic, and Dumas*, 1375
Root initiation,
increase with 2,4-DNP in bean hypocotyls, *Krul*, 439
Root production,
on cuttings, promotion by gonadotropin, *Leshem and Lunenfeld*, 313
Root tips,
photoreversible attachment to glass, substances essential for, *Tanada*, 2070
Rotational streaming,
in fiber cells, its role in translocation, *Worley*, 1648
Rubidium,
transport in bean, *Steward and Koontz*, 583
Rumex leaf discs,
control of senescence by gibberellic acid, *Goldthwaite and Laetsch*, 1855
Rust: *see Uromyces phaseoli and Puccinia graminis*

— S —

Saccharum spp.: *see* Sugarcane
Salinity,
effect on protein synthesis in pea roots, *Kahane and Poljakoff-Mayber*, 1115
Salt secretion,
effect on psychrometric determinations of water potential of cotton leaves, *Klepper and Barrs*, 1138
Sap tension,
in flooded trees and bushes of the Amazon, *Scholander and de Oliveira Perez*, 1870
Scenedesmus obliquus,
boron not essential for growth of, *Dear and Aronoff*, 997
participation of reductive pentose phosphate cycle in photoreduction and oxyhydrogen reaction in, *Russell and Gibbs*, 649
Seed dormancy,
and abscisic acid levels, *Sondheimer, Tzou and Galson*, 1443
DNA template and RNA polymerase associated with breaking of, *Jarvis, Frankland, and Cherry*, 1734
Seed germination,
opposing actions of light in, *Hendricks, Toole, and Borthwick*, 2023
Seedcoats, removal of,
effect of soaking on seeds after, *Larson*, 255

Seedling growth,
of seeds with and without seedcoats after soaking, *Larson*, 255
Selenium,
absorption by excised *Astragalus* roots, *Ulrich and Shrift*, 14
Senescence,
and recovery from radiation damage to mitochondria in pear fruit, *Romani, Yu, Ku, Fisher, and Dehgan*, 1089
control in *Rumex* leaf discs by gibberellic acid, *Goldthwaite and Laetsch*, 1855
ethylene and abscission, *Burg*, 1503
in leaf abscission, *dela Fuente and Leopold*, 1496
Serine metabolism,
comparative study of enzymes in higher plants, *Cheung, Rosenblum, and Sallach*, 1813
Serum albumin,
stimulation of photoreactions of isolated chloroplasts, *Friedlander and Neumann*, 1249
Shoot growth,
interaction of inhibition from *Ceratonia siliqua* and gibberellic acid on, *Corcoran and West*, 859
Sieve tubes,
bidirectional translocation of sugars in, of squash, *Trip and Gorham*, 887
Sinningia speciosa,
photomorphogenesis in, *Satter and Wetherell*, 953, 961
Sirenin,
response of male gametes of *Allomyces*, *Machlis*, 1319
Sodium transport,
ion transport characteristics of lipids in relation to, *Kuiper*, 1372
Soil temperature,
and photosynthesis and transpiration of Monterey pine seedlings, *Babalola, Boersma, and Youngberg*, 515
Soil water content,
effect of changing stomatal width on, in a pine forest, *Turner and Waggoner*, 973
Solanum tuberosum: *see* Potato
Sorghum,
atrazine metabolism in, *Shimabukuro*, 1925
Sorghum vulgare,
relationships between root production and anthocyanin biosynthesis in first internodes of, *Stafford*, 318
Soybean,
ATP sulfurylase activity in, *Adams and Johnson*, 2041
bacterial contribution to precursor incorporation into nucleic acids of, *Sobota, Leaver, and Key*, 907
changes in reserve proteins of germinating soybean seeds, *Catsimpoolas, Campbell, and Meyer*, 799
Soybean cotyledon,
effect of 2,4-dichlorophenoxyacetic acid on cytokinin requirement of, *Witham*, 1455
Soybean nodules,
electron donor system for nitrogenase-dependent acetylene reduction by extracts of, *Klucas and Evans*, 1458
purification of nitrogenase from, *Klucas, Koch, Russell, and Evans*, 1906
Sphaerocarpos donnellii,
light effects on growth of, *Miller and Machlis*, 7
light mediated chloroplast changes in, *Miller a Machlis*, 723
Spinacea oleracea: *see* Spinach
Spinach,
acetate binding of chloroplasts as a facet of fatty acid synthesis, *Devor and Mudd*, 853
isolation of chloroplasts in pyrophosphate medi *Cockburn, Walker, and Baldry*, 1415
release of fatty acids and loss of Hill activity b chloroplasts of, *Constantopoulos and Kenyon*, 53
Spirodela intermedia,
photocontrol of flavonoids of, *McClure*, 193
Spirodela oligorrhiza,
levels of phosphorus compounds in, *Bieleski*, 129 1309
Spirodela polyrrhiza,
dormancy, turion formation, and germination b different clones, *Perry*, 1866
Squash,
bidirectional translocation of sugars in sieve tube of, *Trip and Gorham*, 877
effects of *Hypomyces solani* infection on metabolism of hypocotyls, *Hancock*, 1666
labeling pattern of translocated stachyose in, *Hendrix*, 1631
translocation of ^{14}C-sugars and tritiated water in, *Trip and Gorham*, 1845
Sr transport,
and Ca transport in root segments, *Hutchin and Vaughan*, 1913
Stachyose,
labeling patterns of translocated, in squash, *Hendrix*, 1631
Starch biosynthesis,
activation and inhibition of ADP glucose pyrophosphorylase, *Sanwal, Greenberg, Hardie, Cameron, and Preiss*, 417
Starch breakdown,
enzymic mechanism in germinating rice seeds, *Murata, Akazawa, and Fukuchi*, 1899
Starch synthesis,
associated with increased respiration in germinating lily pollen, *Dickinson*, 1
Stem elongation,
in radish, role of gibberellins, *Suge and Rappaport*, 1208
in *Sinningia speciosa*: interaction of phytochrome and a red-requiring reaction, *Satter and Wetherell*, 961
Sterols,
effect on permeability of alcohol-treated red beet tissue, *Grunwald*, 484
Stomata,
diffusional interference between adjacent, *Cook and Viskanta*, 1017
Stomatal opening,
in epidermal strips of *Vicia faba*, *Fischer*, 1947, 1953
Stomatal width,
changing, effect on soil water content, leaf water potential, bole diameter, and growth in a pine forest, *Turner and Waggoner*, 973
Submitochondrial particles,
from mung bean seedlings, ubiquinone in, *Beyer, Peters, and Ikuma*, 1395

Succinate oxidation,
in tomato fruit mitochondria, *Drury, McCollum, and Garrison,* 248
Succinic acid 2,2-dimethyl hydrazide,
inhibition of apple ripening by, reversed by ethylene, *Looney,* 1133
Sucrose synthetase: *see* Enzymes
Sugar beet,
inhibition by ammonia of water uptake by roots of, *Stuart and Haddock,* 345
Sugarcane,
dark periods and temperature in flowering of, *Clements,* 57
Sugars,
bidirectional translocation of, in sieve tubes of squash, *Trip and Gorham,* 877
metabolism of, in immature grape berries, *Hardy,* 224
Sulphate-reducing system,
properties of a cell-free system from *Chlorella, Schiff and Levinthal,* 547
thiosulphate, a major product, *Levinthal and Schiff,* 555
Sunflower,
diffusion resistance of leaves, *Hunt, Impens, and Lemon,* 522
translocation of ^{14}C from a leaf of, *Shiroya,* 1605
Sweet potato,
ultrastructure and purification of mitochondria from, *Baker, Elfvin, Biale, and Honda,* 2001
Swelling,
of *Phaseolus vulgaris* hypocotyl mitochondria, *Earnshaw and Truelove,* 121

— T —

Temperature,
and dark periods in sugarcane flowering, *Clements,* 57
and light intensity on respiration rate of Douglas-fir seedlings, *Brix,* 389
effect on circadian rhythm of leaf movement in *Coleus, Halaban,* 1887
effect on O_2 inhibition of photosynthesis in wheat leaves, *Jolliffe and Tregunna,* 902
effect on peroxidase isozymes of tobacco tissue culture, *De Jong, Olson, Hawker, and Jansen,* 841
influence on chloroplast pigment production in maize mutant, *Millerd and McWilliam,* 1967
Template,
requirement of maize RNA polymerase, *Stout and Mans,* 405
Tendrils,
contact coiling of, water movement and membrane changes, *Jaffe and Galston,* 537
Thiosulphate,
a major product of cell-free sulphate-reducing system from *Chlorella, Levinthal and Schiff,* 555
adenosine-3'-phosphate-5'-phosphosulfate an intermediate in formation of, in *Chlorella, Hodson, Schiff, Scarsella, and Levinthal,* 563
in vivo metabolism of, by *Chlorella, Hodson, Schiff, and Scarsella,* 570
Tobacco: *see also Nicotiana tabacum*
effect of benzimidazole on, *Dyar,* 477
effect of genetic differences in photorespiration on net photosynthesis, *Zelitch and Day,* 1838
effect of ozone on swelling of mitochondria from, *Lee,* 133
fatty acid composition of, *Chu and Tso,* 42
γ-methylaminobutyraldehyde, its role in nicotine biosynthesis in, *Mizusaki, Kisaki, and Tamaki,* 93
photorespiration in, *Zelitch,* 1829
relationship of boron to gibberellic acid-induced proliferation in debudded, *Skok,* 384
structural, physiological, and biochemical gradients in pith tissue, *Lavee and Galston,* 1760
Tobacco, debudded,
morphogenic responses to gibberellic acid and indole-3-acetic acid, *Skok,* 215
Tobacco, tissue culture,
effect of cultivation temperature on peroxidase isozymes of, *De Jong, Olson, Hawker, and Jansen,* 841
Tobacco stem pith callus tissue,
effect of 2,4-dichlorophenoxyacetic acid on cytokinin requirement of, *Witham,* 1455
Tomatine,
mode of action as a fungitoxic agent, *Arneson and Durbin,* 683
Tomato,
action of light of different spectral energy distribution on germination of seeds of, *Yaniv and Mancinelli,* 117
chymotrypsin inhibitor I induced in leaflets, *Ryan,* 1880
mitochondria from, do not produce ethylene, *Ku and Pratt,* 999
succinate oxidation in mitochondria from fruit of, *Drury, McCollum, and Garrison,* 248
Tomato, extreme dwarf,
peroxidases from, *Evans,* 1037
Tomato fruit,
isolation of mitochondria from, *Ku, Pratt, Spurr, and Harris,* 883
Translocation,
and rotational streaming in fiber cells, *Worley,* 1648
of ^{14}C-assimilates and phosphate in detached bean leaves, *Leonard and Glenn,* 1380
of ^{14}C from a sunflower leaf, *Shiroya,* 1605
of sugar and tritiated water in squash plants, *Trip and Gorham,* 1845
Translocation, bidirectional,
of sugars in sieve tubes of squash, *Trip and Gorham,* 877
Transmembrane potentials,
and potassium concentrations in pea roots, *Etherton,* 838
Transpiration,
and illuminance, *Ehrler and van Bavel,* 208
as a function of water stress and soil temperature in Monterey pine seedlings, *Babalola, Boersma, and Youngberg,* 515
in barley under moisture stress, *Millar, Duysen, and Wilkinson,* 968
Transport,
in detached bean leaves, *Leonard and King,* 460
of 3-*o*-methylglucose in *Daucus carota* cells, *Reinhold and Eshhar,* 1023
Transport, lateral,
and metabolism of IAA in corn coleoptiles, *Wilkins and Whyte,* 1435
Trifluralin,
effect on growth, morphology, and nucleic acid synthesis in corn, *Schultz, Funderburk, and Negi,* 265
Trifolium subterraneum,
calcium and nodulation, *Lowther and Loneragan,* 1362

Tris,
-washed chloroplasts, photoreduction and photophosphorylation, *Yamashita and Butler*, 1978
Triticum duran: *see* Wheat
Tritium vulgare: *see* Wheat
Tryptophan,
biosynthesis in cell cultures of *Nicotiana tabacum*, *Delmer and Mills*, 81
Tube transformation,
and protochlorophyllide photoconversion by flash irradiation in bean leaf plastids, *Kahn*, 1781
Tubular membranes,
in prolamellar bodies of bean leaf plastids, *Kahn*, 1769
Turgor pressure,
measurement of, in *Nitella*, *Green*, 1169
measurement of, in phloem of oak, *Hammel*, 1042
Turion formation,
by different clones of *Spirodela polyrrhiza*, *Perry*, 1866

— U —

UDP glucose,
cellulose synthesis in oat from, *Ordin and Hall*, 473
UDP-D-glucose,
biosynthesis of glucans from, by enzyme preparations, *Flowers, Batra, Kemp, and Hassid*, 1703
Ubiquinone,
in submitochondrial particles from mung bean seedlings, *Beyer, Peters, and Ikuma*, 1395
Ultrastructure,
of isolated mitochondria, *Baker, Elfvin, Biale, and Honda*, 2001
Ultraviolet irradiation,
effects on *Agmenellum quadruplicatum*, *Van Baalen*, 1689
Uncoupling,
of respiration-linked contraction in corn mitochondria, *Hanson, Miller, and Dumford*, 811
Uridine,
metabolism in bean leaves, *Ross and Cole*, 1227
Uridine diphosphate *N*-acetyl-D-glucosamine,
pathway of biosynthesis in mung bean, *Mayer, Bikel, and Hassid*, 1097
Uromyces phaseoli,
malic enzyme in uredospores of, *Rick and Mirocha*, 201
Uronic acid,
conversion of *myo*-inositol to, in maize root tips, *Roberts, Deshusses, and Loewus*, 979
UV-irradiation,
site of inhibition in chloroplasts, *Yamashita and Butler*, 2037

— V —

Vein loading,
in detached bean leaves, *Leonard and King*, 460
Veratrum tenuipetalum,
growth substances from, *Olney*, 293
Vicia faba,
stomatal opening in epidermal strips of, *Fischer*, 1947, 1953
Virescent mutant,
of cotton: metabolic characteristics, *Benedict and Kohel*, 1611
Vitis vinifera: *see also* Grape
gonadotropin promotion of rooting on cuttings of, *Leshem and Lunenfeld*, 313

— W —

Water balance,
and moisture stress in barley, *Millar, Duysen, and Wilkinson*, 968
Water movement,
associated with contact coiling of pea tendrils, *Jaffe and Galston*, 537
Water potential,
diurnal pattern in woody plants, *Klepper*, 1931
effects of salt secretion on psychrometric determinations of, in cotton leaves, *Klepper and Barrs*, 1138
relationship to growth of leaves, *Boyer*, 1056
Water relations,
and root and shoot growth of pine seedlings, *Kaufmann*, 281
Water status,
influence of changing leaf characteristics on beta-gauging of, *Mederski and Alles*, 470
Water stress,
and photosynthesis and transpiration of Monterey pine seedlings, *Babalola, Boersma, and Youngberg*, 515
and water balance in barley, *Millar, Duysen, and Wilkinson*, 968
Water, tritiated,
translocation in squash plants, *Trip and Gorham*, 1845
Water uptake,
inhibition by ammonia of, in sugar beet roots, *Stuart and Haddock*, 345
Wheat,
changes in enzyme levels during germination of, *Firenzuoli, Vanni, Ramponi, and Baccari*, 260
germination of, changes in sRNA and ribonuclease activity, *Vold and Sypherd*, 1221
isolation of mitochondria from, *Sarkissian and Srivastava*, 1406
O_2 inhibition of photosynthesis in leaves, *Jolliffe and Tregunna*, 902
pyruvate kinase of K-deficient, *Sugiyama, Goto, and Akazawa*, 730
RNA from leaves and chloroplasts of, *Hadziyev, Mehta, and Zalik*, 229
role of calcium in nitrate assimilation in seedlings, *Paulsen and Harper*, 775
seedling growth in absence of gravitational force, *Lyon*, 1002
Wheat grain,
composition of soluble nucleotides in, *Jenner*, 41
Wolffiella floridana,
conversion of *myo*-inositol to phytic acid in, *Roberts and Loewus*, 1710
Wood formation,
relationship to photosynthesis, respiration, and ^{14}C distribution in *Pinus resinosa*, *Gordon and Larson*, 1617

— X —

Xanthium pensylvanicum,
physical forces in dormancy and germination of, *Esashi and Leopold*, 871

— Z —

Zea mays: *see also* Corn *and* Maize
continuity of chloroplast membrane system in, *Rosado-Alberio, Weier, and Stocking*, 1325
potassium nutrition on RNA and ribonuclease in, *Hsiao, Hageman, and Tyner*, 1941
ribonuclease activity associated with ribosomes of, *Hsiao*, 1355